S. HRG. 100-622

IMPLEMENTATION OF TITLE I OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT

JOINT HEARING

BEFORE THE

SUBCOMMITTEES ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT AND ENVIRONMENTAL PROTECTION

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

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IMPLEMENTATION OF TITLE I OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT

THURSDAY, FEBRUARY 18, 1988

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, SUBCOMMITTEES ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT AND ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittees met, pursuant to notice, at 10:08 a.m., in room 406, Dirksen Senate Office Building, Hon. Frank R. Lautenberg (chairman of the Subcommittee on Superfund and Environmental Oversight) presiding.

Present: Senators Lautenberg, Moynihan, Mitchell, Breaux, Chafee, Durenberger, Warner, and Pressler.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. I call the Subcommittee on Superfund and Environmental Oversight hearing to order. I want to welcome our guests at the witness table. We will be getting to your testimony in just a minute.

The Subcommittee on Superfund and Environmental Oversight, which I chair, and the Subcommittee on Environmental Protection which is chaired by my good friend George Mitchell are holding this joint hearing to review implementation of the Ocean Dumping Act and to assess progress toward finally ending the ocean dumping of sewage sludge.

People have dumped sewage sludge off the New Jersey coast since the 1920's. With the passage of the Marine Protection, Research, and Sanctuaries Act in 1972, Congress has worked to put a stop to this practice and to the continued degradation of our oceans.

In 1977 Congress passed an amendment to this act to make sure that the dumping off New Jersey, New York, and Delaware was finally ended. A 1981 deadline was put in place, and yet the courts allowed the dumping to continue. Dumping now has been moved further out to sea at the 106-mile site, and that's the only area off the U.S. coastline where sewage sludge dumping is still permitted.

But this cannot be a case of out of sight and out of mind. It should have been clear to all the ocean dumpers that they were living on borrowed time. EPA has designated the 106-mile site for use only until March 17, 1991.

Moreover, in the Water Resources Development Act of 1986 the Congress barred new entrants from using the 106-mile site. It is clear, however, that without a firm deadline to end ocean dumping of sewage sludge, alternatives will not be developed and implemented, and ocean dumping therefore is likely to continue.

This committee has passed law after law to protect our coastal environment and ocean waters. In coastal States like New Jersey the quality of the coastal environment is critical. It is not just to the quality of life which is most important, but to the health of our citizens and the economy as well. Tourism, businesses related to tourism, and fisheries depend upon the quality of the environment.

But we need to do more. Communities still use our waters as an open sewer. That's why I introduced the Ocean Dumping Reform Act of 1988. It establishes a firm deadline, December 31, 1991, to end, once and for all, all the ocean dumping of sewage sludge. The bill recognizes the States' responsibility here. It requires the States of New York and New Jersey to make annual reports to EPA on progress being made relative to ocean dumpers.

EPA in turn is required to report to the Congress on whether adequate progress to meet the deadline is being made. I am particularly pleased that my colleague, Senator Chafee, the Ranking Republican of the Subcommittee on Environmental Pollution, is an original cosponsor of this bill. He has had a concern about the quality of the environment in our oceans generally that is second to none.

The ocean is a resource that belongs to all of us. It belongs to those who reside at or visit our shoreline. It belongs to the businesses whose livelihoods depend upon the healthy tourism industry. It belongs to the commercial and recreational fishermen, whether they dock in Cape May, Point Judith, or Long Island, who depend on the ocean's productive fishery resources. It belongs most of all to future generations who will inherit the environment when we leave.

Ending the dumping of sewage sludge in the waters off the New Jersey shore is an essential action if we are to preserve the ocean and its resources, both for those who now use the ocean and for those who would like to use it in the future.

Today's hearing will give us the opportunity to see what progress is being made to end ocean dumping or sewage sludge.

Now I would like to ask my distinguished colleague, Senator Chafee, whether he has a statement.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. Thank you very much, Senator Lautenberg.

First, I would like to congratulate you and thank you for holding these hearings and for taking the lead in this very, very serious problem. As you mentioned, I am a cosponsor of the legislation you have introduced which I think is good legislation to end that dumping by the end of 1991.

I have a statement I would like to submit for the record, if I might, Mr. Chairman, but I just would like to say a few things.

Congress first spoke, in 1972, about ocean dumping, and at that time, that was 16 years ago, Congress declared it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare, amenities, the marine environment, ecological systems, or economic potentiality.

It is obvious that we have not stood by that declaration. Into the ocean are going heavy metals, toxic waste. One lobsterman from my State came by and told me that the take of lobster in that area is down 80 percent. We can't exactly determine that the decline is due to the dumping of sludge, but we believe it is a primary factor in it.

We know that the pollution of New York's 12-mile dump site, recently closed, has harmed, perhaps irreparably, a large ocean area, and the same fate awaits the 106-mile dump site. But the potential there for seriously damaging the fisheries of the East Coast is far greater. A report by NOAA characterizes the site as a highly dispersive environment where waste contaminants will be mixed effectively and transported in unpredictable ways from points of import.

Now the question always comes up: What are we going to do with it? Every major city in the United States isn't located along the coast. Philadelphia which is close to the coast has found innovative methods for dealing with its sludge through pretreatment and is able to utilize sludge products for land reclamation. Cities in the midwest obviously don't have ocean dumping of sludge as an option and have found other, more environmentally sound, methods for dealing with sludge. But for coastal cities obviously there is a big temptation to use the ocean as a dumping site, and it is hard to resist that temptation.

Mr. Chairman, I also want to welcome Senator Roth who has been instrumental in persuading municipalities such as Philadelphia and Camden to develop alternatives to ocean dumping of sludge, and Congressman Florio who has been so active in a host of environmental activities.

So again I want to thank you, Mr. Chairman, for holding these hearings and congratulate you, and I hope we can move forward vigorously.

[Senator Chafee's opening statement follows:]

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

I would like to thank the chairmen of the subcommittees who have called this hearing, Senator Mitchell and Senator Lautenberg, for focusing attention on the damaging effects of industrial, urban and agricultural wastes on our marine environment.

This hearing will give us an opportunity to assess whether title I of the Ocean Dumping Act is adequately protecting coastal waters, and will focus specifically on the disposal of sewage sludge at the 106-mile dumpsite off the coast of New Jersey. Senators Lautenberg and Roth, and myself have recently introduced legislation which will prohibit dumping at this site after 1991, and will require those municipalities utilizing the site to develop environmentally sound alternatives to ocean disposal.

Congress made its intent regarding ocean dumping very clear when, in 1972, it passed the Ocean Dumping Act, which stated:

"The Congress declares that it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare or amenities, or the marine environment, ecological systems, or economic potentialities."

Despite this declaration, we are still permitting the dumping of sewage sludge, which contains high levels of heavy metals and is known to be toxic, into our coastal waters. I am concerned, and the fishermen of my State and of New England are concerned, that this sludge is having an adverse effect on the fisheries. One lobsterman stopped by my office to tell me that his take of lobster from an area affected by this sludge is down 80 percent. While no research has been done to determine whether the decline in lobsters is due to dumping at the 106-mile site, one thing is clear: pollutants in the ocean are already threatening the $6 billion U.S. commercial and recreational fishing industry. A startling 33 percent of U.S. shellfish beds are closed due to health-threatening levels of pollution.

In my own State of Rhode Island, the newspaper all too often carries the notice: "Temporary Closure of Shellfish Grounds." In 1987, the upper Narragansett Bay was closed to shellfishing for 201 days.

We know that pollution at New York's 12-mile dump site, recently closed by EPA, has harmed, perhaps irreparably, a large ocean area. The same fate awaits the 106-mile dump site area. At the 106-mile dump site, however, the potential for seriously damaging the fisheries of the east coast is much greater. A report by NOAA [the National Oceanic and Atmospheric Administration] characterizes the site as a "highly dispersive environment where waste contaminants will be mixed effectively and transported in unpredictable ways from points of input."

In a separate report, NOAA estimated the potential area of influence of dumped wastes to encompass 116,000 square kilometers.

Nothing could sink the fishing industry of the United States faster than to have fresh fish associated with contamination.

If dumping municipal sludge in the ocean were the only alternative, or the best alternative, then fine. But EPA has said unequivocally that those States utilizing the 106-mile dump site have not fully explored other options.

Philadelphia has found innovative methods for dealing with its sludge, and, through pretreatment, is able to utilize sludge products for land reclamation. Cities in the Midwest do not have ocean dumping of sludge as an option, and have found other, more environmentally-sound methods for dealing with sludge.

Yet for coastal States, the temptation to use the ocean as a dumping site is hard to resist. In the case of municipal sludge, this temptation must be resisted. Municipalities utilizing the 106-mile dump site must apply themselves in earnest to the development of viable alternatives to the ocean dumping of sludge.

It is important to keep in mind that sludge from the 106-mile site has the potential of polluting not only the shorelines of New York and New Jersey, but the entire east coast. I am particularly pleased to see on the witness list the name of Mr. David Borden, chairman of the New England Fisheries Management Council. I would also like to welcome Senator Roth, who has been instrumental in persuading municipalities such as Philadelphia and Camden to develop alternatives to ocean-dumping of sludge.

We cannot continue to jeopardize the well-being of our fisheries, and the health of our ocean. I look forward to a productive hearing on what steps must be taken to provide adequate protection for our valuable marine environment.

Senator LAUTENBERG. Thank you, Senator Chafee. As usual, you have stated the case very clearly, and we appreciate your help and your cooperation in this matter.

I would like to ask Senator Moynihan if you have an opening statement?

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, U.S. SENATOR FROM THE STATE OF NEW YORK

Senator MOYNIHAN. Mr. Chairman, I do. I do mostly want to join Senator Chafee in thanking you, not just for the energy with which you have organized this hearing but the great courtesy you have shown to those of us who are not immediately of your view in the matter which is a qualification that is always necessary because

wherever we start, we usually end up agreeing with you such is your capacity for persuasion.

Can I say, Mr. Chairman, there are truly questions here. Seventy-one percent of the world's surface is covered by water, and it is not self-evident that the disposal of waste ought to be confined to land. Indeed, there are simply laws of physics and the destructibility of matter and so forth which just get you into a kind of cyclone, or so it seems to me. I think Senator Roth and Representative Florio would recognize the dilemma, as would you.

The guardians of the sea say dispose on the land; and the guardians of the land say incinerate and dispose in the air; and the guardians of the air say dispose in the sea. You kind of go around a little while on that.

I am not sure we have worked out all of the alternatives. In this particular bit of the ocean which we share called the New York Bight the largest source of pollution is in fact riverborne from the Hudson and the Raritan, as I am sure you know, the largest source of just annoyance are things that float on the surface. The people who use our respective beaches have every reason to expect that they won't be littered, and from time to time they find them disagreeably so. It has been a problem since the turn of the century. You are working at the right problem.

Last year you and Senator Bradley and Senator D'Amato and I got legislation enacted that we called the New York-New Jersey Bight Restoration Act which asked EPA and other agencies to develop a plan. That is the law, and it is your law, our law, and we would hope to hear something from them today.

There was that lovely line that President Kennedy used to use. I mean, he would end up a meeting with this remark. He would say, "To govern is to choose," when he had just made a choice he wasn't very happy about, but you know there wasn't any happier one to make.

I have to say again that the guardians of the sea want waste disposed on land, and the guardians of the land want it incinerated and disposed in the air, and the guardians of the air want it disposed in the sea. So we in the capacity of the persons who have to govern have to choose.

Thank you, sir. You know that whatever we do, we begin this discussion with the utmost regard for your capacity as a manager and your integrity as a statesman, I don't use that word too lightly, your integrity as a man, and your ferocity as a New Jerseyan.

Senator LAUTENBERG. Thank you, Senator Moynihan, for your wisdom and your intelligence and, in this case, particularly your closing remarks.

Senator Moynihan has a way of making difficult subjects at least reasonable for discussion. We appreciate that greatly. Let me be sure to point out that it is not this Senator's view that the only problem that we have in fouling our oceans and our marine environment is sludge dumping, not at all. When we jointly developed that study of the New York Bight, we looked toward its restoration, I think back of earlier days when that river and the bight generally was a lot cleaner and I am reminded of a happier period. We would like to try to return to that. I think that's a requirement upon a modern society, that you don't just elevate the individual

quality of life while you ignore the environment because ultimately that comes back to a problem that becomes insoluble.

I do want to work with you, Senator Moynihan, in resolving this problem. We are going to do it in the best way that we can.

Senator Durenberger.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator DURENBERGER. Mr. Chairman, I thank you for holding these joint hearings. You may wonder what Larry Pressler and I are doing here. We don't have a lot of oceans, we don't have a lot of mountains, we don't have tall buildings, or quite as tall as you all have, but we have the same kind of problems. I think we got rid of our last ocean dumping in Lake Superior about 12 years ago. We required the Reserve Mining Company to spend about $350 million to divert their dumping onto the land. We are still debating in Minnesota now that LTV and Republic have bankrupted that particular processing company, we are still debating, as Pat Moynihan indicated, whether on land, under the sea, out of sight or out of mind is the best way to deal with this issue.

I spent last week in my State with another issue which is brown water and discovered in the course of that, because I needed statistics, that in my State we generate, each Minnesotan, and we are not heavy eaters or consumers, generates over 1 ton of garbage per person per year. That was an interesting statistic. Just to imagine seeing people generate it was interesting, and unfortunately that isn't the way it works. You only see it in barges and you see it in trucks and things like that.

I just wanted to say that the reason you have two subcommittees here, this combination of effort, whether it is ocean dumping or it is ground water pollution or it is municipal incineration, which this committee has spent a lot of time dealing with the effects of, we don't have the answers. Pat says we have to make the choices, but the answers are not readily available to us.

What I enjoy about the people that are sitting at the table in front of us, Jim Florio in particular, a long history of this activity, Bill Roth, who has done the same, and the folks who sit around this table, is that we aren't afraid to discuss the issues and we aren't afraid to differ with each other on the issues.

I think in a generational sense, this is the most important problem that faces this country: how do we deal with our need to consume and then dispose the obligations for that on somebody else? I think that the fact that this committee has been so willing to undertake these issues is certainly a compliment to everybody on the committee and, Mr. Chairman, on this particular issue is certainly a compliment to you and your abilities and your representation of your constituents.

Senator LAUTENBERG. Thank you very much, Senator Durenberger.

The cochair of this hearing, Senator George Mitchell, who is chairman of the Environmental Pollution Subcommittee has joined us. George, if you would like to make a statement now, I am sure our colleagues will allow it.

OPENING STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Senator MITCHELL. Thank you very much, Senator Lautenberg. I am pleased to join you in chairing this hearing on implementation of the Marine Protection, Research, and Sanctuaries Act and the issues related to ocean disposal of sewage sludge.

It is essential that we preserve and protect the environmental integrity of our estuaries and coastal waters and the commercial fishing, recreation, and other economic activities that they support.

There is growing evidence of threats to the environmental quality of marine waters. Recent reports by the Office of Technology Assessment and the National Oceanic and Atmospheric Administration point to serious problems in some coastal areas and raise concern for the potential contamination of areas which are now relatively clean.

At a recent hearing I heard testimony about concern for the environmental quality of the Gulf of Maine. While the gulf is still very clean, there are early warnings of potential environmental problems. It is crucial that we learn more about our marine and near-shore ecosystems. Improved knowledge about the biological, physical and chemical characteristics of our marine systems is crucial to preventing pollution problems before they are of such magnitude that massive expensive cleanup efforts are required.

We must have a comprehensive program of first-rate scientific research and monitoring for our coastal and marine waters.

Yesterday I introduced the Marine Research Act of 1988 which is intended to strengthen and expand research of marine waters through the establishment of regional marine research centers. I am pleased that Senators Chafee, Lautenberg, Graham, Moynihan, Mikulski, and Warner, and others joined me in introducing this legislation.

Today's hearing is an opportunity to review the implementation of the marine protection statute in light of recent reports of growing threats to the marine environment. I look forward to learning more about the disposal of sewage sludge generated by communities in the greater New York area. This is a major part of ocean disposal activity and deserves careful oversight by the Congress.

We need to understand the impact of ocean disposal of sludge, and we need to understand the alternatives to this practice. Most importantly, Congress needs to provide the EPA, the States, and the affected municipalities with a clear statement of policy so they can proceed with confidence in the development of sludge management plans.

I hope this hearing will bring us closer to such a policy.

In addition, the hearing is an opportunity to review the implementation of other ocean disposal activities, including ocean disposal of dredge material. While there is general agreement that dredging is essential to commerce and related activities, we have an obligation to assure that the environmental safeguards in the Marine Protection Act are implemented fully and effectively.

I am especially concerned that dredge material disposal sites receive careful environmental assessment and that we have sound

procedures for identification and management of contaminated material.

Mr. Chairman, I want to apologize in advance to the witnesses. I have been asked to participate in the negotiations over the pending legislation, S. 2, with representatives of both parties, and I will have to attend a negotiating session that has already started. But I do look forward to reviewing their testimony later on.

Senator LAUTENBERG. Thank you very much, Senator Mitchell. We wish you God's speed and good luck in the negotiation.

Senator Pressler, I think you were next.

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator PRESSLER. Mr. Chairman, I shall submit my statement for the record.

Let me also apologize, the Foreign Relations Committee is meeting, and the Commerce Committee, and I am skipping among my committees this morning.

But let me welcome the witnesses. I am glad to see the Mayor of New York here. Even though this is not a South Dakota problem, we do have lots of problems with the environment in South Dakota, such as ground water, the issues of keeping food clean, pesticides, insecticides, all those chemicals used in agricultural production. We do have some of the cleanest air in the country in South Dakota. In fact, one of the most famous Sierra walks is in the Black Hills. We want to keep that air clean.

I might say that we all depend on each other. As a Senator from South Dakota I am interested in helping out on this problem. When the mayor of New York and I were in the U.S. House we had a little exchange of sorts. We brought some cattlemen to New York and he hosted us, and I think Rick Nolan of Minnesota had him out, and he did some work on the farm, as I recall. So we are very glad to have that kind of exchange.

But in any event, the issues presented to us here may seem like an East Coast problem, but I am certainly willing to help out in any way I can. I might say, Mr. Chairman, that there is a new product, a biodegradable plastic bag made from corn by-products. So perhaps we could sell some corn to New York and New Jersey to help out with this problem.

Senator LAUTENBERG. That's a double winner, isn't it? We are always interested in biodegradable products. Senator Chafee certainly has been out in the forefront on those. We welcome your support, Senator Pressler, on the environmental issues. Even though it may not directly touch your State, you have evidenced a concern over these years on a better environment. We appreciate that.

[Senator Pressler's opening statement follows:]

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Mr. Chairman, thank you for scheduling this oversite hearing on the Marine Protection, Research and Sanctuaries Act. Looking at the witness this is obviously a very important issue in New York, New Jersey and the entire United States.

Todays hearing and many of this committees hearings deal with the problem of disposing of waste material. This is a growing problem and one that is not going to

go away. To effectively address the issue of waste disposal I think we need to use the most advanced technology to develop new biodegradable materials, more effective recycling processes and environmentally safe disposal processes. For example, a South Dakota farmer recently visited my office and brought me a biodegradable plastic bag made from a corn byproduct. The biodegradable material would become part of the soil in five years or less. Use of biodegradable plastic materials would be a very environmentally sound policy.

For other materials a greater emphasis should be placed on recycling. This may not be as convenient, but people and communities are going to have to sacrifice some convenience to avoid environmental problems. Comprehensive longterm legislation encouraging the use of the most advanced technologies in these areas should be encouraged.

Mr. Chairman, I look forward to hearing the witnesses and working with you on this issue.

Senator LAUTENBERG. Senator Breaux.

OPENING STATEMENT OF HON. JOHN B. BREAUX, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator BREAUX. Thank you, Mr. Chairman.

Just very briefly, it is certainly good that you are having these hearings. It is not a new issue. I have been fooling with it since 1972 from the other side of the Capitol as a member of the Merchant Marine Committee over there. We are dumping about 8 million tons of sewage sludge annually now.

The law is very clear that you can only dump it if there is no alternative that is reasonable and technically feasible and economically reasonable to do. So I think the question today is not whether we should close the 106-mile site, but only should we do it if there is an alternative that we can use.

What are we going to do with the stuff? I would like to ask the witnesses when they appear, what alternatives do they have? Because that is the key question. It is not whether we like doing what we are doing. It is what we are going to do with it if we don't do that. Unless we have alternatives that can be utilized to dispose of this sewage sludge which has been treated, we are just kidding ourselves. I want to know what the alternatives are that are technically and reasonably and economically feasible so that we will not allow the oceans to be dumped. I mean, it is a last resort, but until we find some other alternatives I think we are going to have to continue utilizing the site that we are utilizing.

Thank you.

Senator LAUTENBERG. Thank you, Senator Breaux.

Now we thank you for your indulgence, Senator Roth and Representative Florio. We are anxious to hear from you, and I would invite Senator Roth first to give us his statement.

STATEMENT OF HON. WILLIAM V. ROTH, JR., U.S. SENATOR FROM THE STATE OF DELAWARE

Senator ROTH. Thank you, Mr. Chairman.

I, too, want to express my appreciation both to you and Senator Chafee for your leadership in this area.

As I listened to Senator Chafee talk about the legislation we enacted back in 1972, I might say I was there and I was a strong supporter. At that time we were hopeful that we were beginning down the road that would lead to the end of ocean dumping. But unfortunately, as you well know, that is not the case.

This is an issue that we discuss every year, and unfortunately there are too many communities not doing that much about it.

I, like you, Mr. Chairman, believe the hour of talk is over. I believe it is time that Congress informs those communities that dump in the ocean the ocean is not intended to be a cesspool. Every ounce of sludge and sewage we dump represents in my judgment another challenge to an ecosystem that can be challenged no longer.

I am disheartened when cities like New York profess that they cannot find alternatives to dumping in the ocean when cities, large cities like Philadelphia, Camden, and Glen Cove, New York, all of whom were ocean dumping culprits, have found alternatives.

Let me say, Mr. Chairman, for many years I testified at hearings at which Philadelphia appeared, and time again it testified there were no alternatives. But finally it was ordered to do so by a court and those alternatives were found. I think that is an example and illustration of what can be done by other major communities.

I would urge that my colleagues take any and all necessary action to end, as you have suggested, ocean dumping now. The ocean dumping of sewage sludge or other municipal waste can no longer be tolerated by a society that is interested in the well being and quality of life for our children and our children's children.

Mr. Chairman, dumping began in our inland rivers, and they were ruined. Then it spread to our estuaries, and they were ruined. Then to the bights, and they were ruined. And now more than 100 miles offshore, and hundreds of dead white sided dolphins have already washed up. In the period of November 1987 through January 1988, 21 dead whales, and this is a conservative number, have washed up on our shores. Our fish markets are handling less fish. Soon, we have been warned, we will not be able perhaps to eat or fish for bluefish or striped bass.

We have already had a public health advisory on the consumption of mackerel. Last, but not least, we have had a red tide take place in the inland bays of Delaware, something that has never happened before.

Though, as has already been suggested, we cannot definitively prove that the dumping caused the death of the dolphins, we do know that they all came from the New York Bight. We know that the whales died a rapid respiratory arrest when their lungs stopped working. They were also feeding on mackerel. We also know that the mackerel had concentrations of biotoxins in their livers and flesh. So that while there is no definitive proof, it is very clear that it does not help.

Mr. Chairman, how are we going to stop ocean dumping? Yesterday I introduced legislation, S. 2066, which I think takes a reasonable approach to the termination of ocean dumping, something that I think people can live with. The approach that I propose is, frankly, quite similar to the approach which the Environmental Protection Agency in Region 3 used to get the cities of Camden, New Jersey and Philadelphia, Pennsylvania to phase out their ocean dumping.

In brief, my legislation calls for a complete ban on dumping to be imposed by the end of this year. The ban is not, however, as strict as that may seem because the administrator of EPA can renew the

permit up to five years. This will only occur if a community that is currently dumping and the EPA can come up with an agreement. As part of that agreement they must have a system design and a schedule by the end of this year which describes how the town is going to stop dumping and what the alternatives will be.

Because this proposal will guarantee the implementation of the ocean dumping alternative within pre-established guidelines, we can be confident that ocean dumping will be terminated.

To encourage compliance with the law, we would fine towns that do not work with EPA in coming up with an alternate plan as well as those towns that do not meet the compliance dates in a reasonable fashion. These stiff fines will not be less than $5,000, and not more than $10,000 per wet ton dumped. All fines will be placed into a newly created Clean Ocean Fund which can then be distributed to EPA and NOAA for enforcement, monitoring and research activities related to ocean dumping.

The legislation is basically the same as Congresswoman Claudine Schneider's House bill H.R. 3938. Both of us have been working together, and particularly with an expert in this area, the able assistance of Mr. John Bryson, who is currently Executive Director of the Mid-Atlantic Fishery Management Council, one time secretary of environmental matters for the State of Delaware. He is greatly interested in this matter and has testified before your committee on numerous occasions. Unfortunately because of the number of people that do want to testify before you, he is not among your witnesses. But I would urge that his expertise, particularly in the comments of some of your panel, that his expertise on how to handle this matter of alternatives be utilized.

I would ask that I include a statement by Mr. Bryson including some valuable economic analysis which I think will be of interest to the committee.

Senator LAUTENBERG. Without objection. (See p. 237.)

Senator ROTH. Finally, Mr. Chairman, in my State of Delaware we have constructed, and I would urge all of you to take a look at this document, the Delaware Reclamation Plan, but in my State of Delaware we have constructed for $75 million an extraordinary total waste reclamation facility which includes glass and aluminum recovery. I would like to invite members of your panel, of New York City and other interested officials to come and visit this Delaware facility. I think it is a viable alternative to the current problem and that they can get on with the job in the necessary three years.

Thank you, Mr. Chairman.

Senator LAUTENBERG. Thank you very much, Senator Roth, for your thoughtful presentation. We certainly will consider the comments that you made about a visit to your plant. I don't know if you are advertising for spare capacity to be filled, but I am sure everybody heard what you had to say here.

Congressman Florio, welcome. Jim, you and I have worked on many environmental matters. You have been in the forefront of clean environment legislation for a long time. As a matter of fact, due to your efforts in 1980 we have on the books a law called Superfund Two, that is designed to help get rid of the toxic waste sites across our country and across our State that have developed

there because of neglect, sometimes willful, sometimes simply out of just ignorance of the fact that we were damaging our environment. So one of the things we are trying to do now is prevent polluting our ocean to the extent that we are looking one day at ways of trying to reclaim it. It is not likely that that could be done.

So, Jim, welcome, and we look forward to your testimony.

STATEMENT OF HON. JAMES J. FLORIO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. FLORIO. Thank you very much, Mr. Chairman.

I take a great deal of pride in the relationship that you and I have developed from both sides of the Capitol, hopefully toward the end of improving the environment. Likewise, many members of this committee have likewise been participants in our efforts in the past to try to improve the environmental laws and particularly the enforcement of those laws to the end of providing people in this country with clean water and clean air and all the other things we strive for.

Mr. Chairman, I have a statement that I would ask be put into the record in its entirety. In order to conserve the committee's time, I will try to summarize my main points.

Senator LAUTENBERG. Thank you.

Mr. FLORIO. I am pleased to be here on this very important topic. I think you and I know particularly the problems associated with ocean dumping. This past summer off the coast of New Jersey we saw all the worst consequences of ocean dumping. The impact upon tourism, the impact upon economic development, the impact upon public health was in the newspapers, and I think everyone across the country knows that the problem there is going to have to be addressed if for no other reason, if you want to put aside the environmental concerns, than you are going to have to take into account the economic concerns that flow from inappropriate dumping into our oceans.

Much was made about the illegal dumping of waste that apparently took place, and this was a source of considerable attention and indignation, and appropriately so.

I guess my point today, and the committee is focusing on this, is that as reprehensible as illegal dumping is, legal dumping may very well be an even more serious problem for the integrity of the ocean.

The Environmental Protection Agency allows, as I think Senator Breaux mentioned, some 8 million tons a year of sewage sludge to be legally deposited in the ocean, some 200,000 tons of industrial acids are deposited off the New York Bight and the Cape May coast with permits from the Environmental Protection Agency. Pipeline discharges from municipalities and industrial facilities up and down our coast on a daily basis are put into the ocean.

At the same time that we are doing this to our oceans, we face a diminishing capacity for garbage disposal on land and non-existent Federal standards for alternatives to landfilling, such as resource recovery plants.

The short-sighted policies of the past which continue on to this very day have created the crisis that this committee is now attempting to address.

We need to promote safe alternatives to practices such as ocean dumping that we now know are clearly unacceptable, and ocean dumping has got to be terminated as soon as possible.

Last December, Mr. Chairman, you may recall that the House Subcommittee on Transportation, Tourism, and Hazardous Materials on which I serve held a hearing in Hoboken, New Jersey at the Stevens Institute of Technology. We heard from a variety of specialists, who testified that alternatives do exist. We are not talking about Buck Rogers technology for the next century. These are technologies that are there now and could be put to work to avoid ocean dumping.

Instead, we have the Environmental Protection Agency in many instances telling us that the degradation of our oceans is necessary because alternatives are not economically feasible. What we heard at that hearing in Hoboken from a host of private sector entrepreneurs was that that argument is just riddled with holes, that these systems already are cost effective and can be made cost efficient, and can be made more economically feasible if we just move in that direction rather than in some instances have regulatory roadblocks created to in fact provide disincentives to move into those areas.

Of course, to those who question the cost that will come from moving out of the ocean, the obvious question is: What is the cost of continuing to dump in the ocean, economic cost and health cost?

There is a role for the Congress to play here. The Congress has created economic and legal incentives for treatment technologies. We have done this in every piece of environmental legislation that we have enacted in the past decade. And as this committee knows, because many of the members were active participants in it, the Resource Conservation and Recovery Act of 1984 was a particularly important piece of legislation with regard to land disposal. The land-ban mandate which was contained in that law which prohibited the disposal of untreated hazardous waste into the land mandates that wastes be treated prior to land disposal.

Under Superfund, the long legal arm of strict joint and several liability creates tremendous economic incentives to hazardous waste generators to detoxify their wastes before land disposal, as well as requiring in the new installment of Superfund that there be permanent remedial treatment at all Superfund cleanup sites.

Each of these laws is a policy that strongly pushes us toward treatment; that is, all of the various options, incineration, stabilization, neutralization, and discourages land and ocean disposal. Unfortunately, some in the administration seem intent on undoing as many of these economic and legal incentives as is possible. Time after time EPA has looked environmental hazards squarely in the eye and blinked.

EPA's solution to hazardous waste regulation is not to require that treatment be undertaken, but rather to engage in a legal sleight of hand by redefining problems out of existence to in a sense redefine hazardous waste into a nonhazardous material by declaring that the hazardous waste is no longer hazardous. Such

redefinition activities weaken the incentives for using treatment alternatives.

Let me just conclude, Mr. Chairman, by pointing out one particularly appalling recent innovation in the redefining area that EPA is in the process of implementing. Recently EPA initiated the so-called reinterpretation of congressional intent regarding ash from municipal incinerators.

By way of background, the committee should be aware that over the past year or so studies have shown that ash from municipal incinerators can contain dangerous levels of toxic materials, even dioxins according to reports by EPA's inspector general. In fact, in one instance ash was so hazardous that several foreign countries refused to accept this ash which came from the City of Philadelphia's incinerator. It was almost the same situation of the boat coming out of Long Island wandering the seas. Well, this ash boat is likewise still wandering the seas.

Nevertheless, EPA's attorneys have concluded that what was too hazardous to be shipped to foreign countries can be thrown into any dump in the United States whether or not the dump has ground water monitoring, protective liners, or whether the ash is even treated or not.

EPA has reached this conclusion despite 2 years of consistently stating and acknowledging that Congress requires that incinerator ash that flunks EPA's test for toxicity meet all of the legal requirements for disposal of hazardous waste. It has to be disposed of in a subtitle (c) facility under RCRA.

Therefore, we have now by legal fiat EPA declaring that incinerator ash is a nonproblem, and effectively we have killed, if this approach goes forward, we have killed the economic and the legal incentives for the development of long-term treatment solutions to neutralize ash out of resource recovery facilities, an important innovation that we are going to have to move into if we are going to deal with our solid waste plants.

Mr. Chairman, let me just say that I appreciate the opportunity to come and to share some thoughts with you. The oversight responsibilities of this committee and comparable committees on the other side are absolutely essential. In some respects it is not the absence of laws that are the problem; it is the absence of the enforcement of the laws in an aggressive vigorous way that is providing the disincentives to move into progressive modes of dealing with some of these problems. I commend you for the vigorous enforcement and oversight responsibilities that you are undertaking.

Thank you.

Senator LAUTENBERG. Thank you very much, Congressman Florio. Your full statement will be included in the record. The record will be open for two weeks, and anything you would like to submit.

We thank you very much for appearing before us this morning, each of you. We look forward to the opportunity to work with you on positive environmental legislation. Thank you very much.

Senator ROTH. Thank you.

Mr. FLORIO. Thank you.

Senator LAUTENBERG. I am sorry, do any of my colleagues have any questions? Forgive me. I am sorry.

Senator Breaux or Senator Chafee.

Senator MOYNIHAN. Thank you. That was very informative.

Senator LAUTENBERG. Thank you very much.

I would like to call on His Honor, the Mayor of New York City, Mayor Edward Koch.

I would like to ask whether Governor Kean is—not here yet. Thank you, commissioner.

We always look forward to hearing from the distinguished mayor from the distinguished City of New York, our very important and friendly New Jersey neighbor.

Ed, I hope you will forgive me this revelation, but though you are not required under law or under oath to state your birthplace, I wouldn't mind your mentioning it.

STATEMENT OF HON. EDWARD I. KOCH, MAYOR, CITY OF NEW YORK, ACCOMPANIED BY HARVEY SCHULTZ, COMMISSIONER, NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. KOCH. Well, there is a misconception that I was born in New Jersey. I was not. I lived in New Jersey. I escaped.

Senator LAUTENBERG. I should have known better than to start with this man. When was he expelled?

Welcome. Senator Moynihan, coming essentially from the same neighborhood, if you would like to say something, we invite you, sir.

Senator MOYNIHAN. We welcome you, Mr. Mayor, and we welcome the commissioner.

Senator LAUTENBERG. Thank you.

Senator CHAFEE. We also welcome the mayor as a leading author.

Senator LAUTENBERG. Indeed.

Mayor, please give us the benefit of your wisdom.

Mr. KOCH. Mr. Chairman, I appreciate the hospitality of this committee. It is always a special privilege to come back to Washington and to participate in hearings of this kind.

I would like to file my full statement and to simply discuss in an extemporaneous way the contents.

Senator LAUTENBERG. Without objection.

Mr. KOCH. We have two problems here. One is a political problem, and the other is a scientific problem. I want to dispose firstly of the scientific problem because there is no problem.

The scientists all agree that what we are doing with respect to the dumping of sludge at 106 miles is not causing any adverse impact and that we ought to be allowed to continue to do that, and that if you were to eliminate that dumping you wouldn't one wit help those who are quite fired up, correctly, with respect to the degrading conditions that exist on some of the beaches, particularly the Jersey beaches. I am very familiar with the Jersey beaches because I spend many, many summers at Bradley Beach, and it is a wonderful shoreline. Only New Jerseyans refer to going to the shore rather than to the beach. It's part of my childhood, and I certainly want to protect the beaches whether they are in New Jersey or in New York.

But the proposed legislation as it relates to sludge has nothing to do with the Jersey beaches. The plastics, the tampons, the cardboard, other terrible things that float to the Jersey shore don't come from sludge.

The sludge that we are putting into the ocean 106 miles out is treated when it is brought out. It doesn't even, because of the nature of it, and Harvey Schultz, who is our commissioner of the Department of Environmental Protection, is better able to go into this, but just in a brief way it doesn't even get to the bottom because it is so finely treated as it goes through the water. And you cannot, from a scientific point of view, justify any legislation to move this out of the ocean.

The political problem is another problem. If you have people really up in arms as they quite are on the Jersey shore, and if I were there, I would be there with a shotgun, but the truth of the matter is, that shotgun leveled at sludge isn't going to help them because even if you got the sludge out of the ocean you will still have these terrible solid waste deposits floating to the Jersey shore because it comes from a different source.

The source that it comes from is the combined sewer overflow, the so-called CSO's which exist throughout this country in that when the rains are heavy and the water goes into your sewer you don't have a separate tunnel for those waters to carry them away, they go into our regular sanitary sewer. Then when they approach the water pollution control plants that we have built at a cost of $2.4 billion they are not large enough to handle all the flow. So that soiled water with all of these deposits and floatables is ejected into the adjacent navigable waters. That's what gets to the Jersey and other shores. And that should be dealt with.

How do you deal with that? We want to deal with that. First, let us tell you that those who say that there are alternate ways to deal with the sludge are absolutely right if they made sense. They don't make any sense and they are very costly. If they were costly and made sense, then impose them. But if they are costly and they make no sense, it doesn't make any sense to impose them.

Let me tell you why they are costly. If you were to use landfills for sludge, and as Senator Breaux pointed out, where do you engage a landfill in the City of New York? I mean, it is very hard. We are down to our last landfill site on Staten Island, and I think that has a life of 12 years. That's without sludge. We are building garbage incinerators at a huge cost, at a huge fight with every single community. And we are going to do it because there is no alternative, and there it makes sense from a cost point of view.

But if we were to use landfill for depositing the sludge, the cost would be a capital cost of $213 million and an operating cost every year of $60 million. If we were to go to incinerators, they would require a capital cost of $477 million and an operating cost of $51 million. And what have you got? Nothing. Because the problem that you are trying to address has nothing to do with sludge.

So what we are saying is, it is sort of like the Emperor's clothes. I feel a little bit like the kid in Japan when the Emperor was without clothes, and everybody says, "Look how gorgeous the Emperor is." Or put it another way, just think of how wonderful he is in his

comments (even though he may be saying foolish things). And the kid said, "The Emperor is not wearing clothes."

What I am saying, as the mayor of the City of New York is, that those who say that we should get the sludge out because it will help the Jersey shore are not basing their comments on scientific reports. They are just simply not.

And I understand it. Every day I have a different political problem, generally ten. But I can't, if I want to maintain either my sanity or the city's sanity, do an irrational act to dispose of a political problem. You have to deal with it sensibly.

So, for example, dealing with the resource recovery plants, another nice word for an incinerator, they are top notch technologically, tip top, and you can use the energy for electricity, but it's an incinerator. Nobody wants an incinerator in their neighborhood. I have to go to every part of this town because we are putting, we already have five on the drawing boards and one that we are very close to starting the construction of in the Brooklyn Navy Yard. The Brooklyn Navy Yard had allegedly, I didn't count them, but the community said 40,000 people crossed over the Brooklyn Bridge to picket City Hall the day that we adopted that particular proposal.

I talked to those people and I said, I understand your fears. I have no alternative because it's reasonable, it's rational, it's responsible, and we've got to get rid of the solid waste. There is no such reasonable answer to a community that comes and says, "then why are you building more incinerators to get rid of sludge in order to save the beaches when it won't save them at all?"

So I am simply saying, that is not a rational way to go.

What we do propose in lieu of this is that we be given an opportunity, and every other locality, to deal with the CSO's, the combined sewer overflows which can be dealt with. And you deal with them by building huge tanks to hold the overflow at the time of the overflow, which is not all year long, and that then later you absorb that overflow back into our plants.

I want to tell you that we are appreciative that when the Congress decided that you should stop raw sewage, Congress provided aid, we understand it is very expensive, and the Congress said, we are going to give you 75 percent of the cost. But I want to tell you what the cost was.

It took us the first 15 years, and the City of New York now puts virtually no untreated sewage into the oceans, none; it took 15 years at a cost of $2.4 billion, and the Federal Government participated to the extent of 75 percent and we and New York State paid 25 percent—not special for us, that was the law. Last year the Federal government went out of that business, and now they don't give any money. Thank God we built what we built. But we intend to spend local funds in the next 10 years upgrading, I guess going to full secondary, and in building our overflow system we are going to spend another $2 billion, our money. There is no Federal program any more.

Now in building this tank to hold the overflow, we expect to spend in a 10 year period $500 million in capital costs. And we will do it. And I want to tell you, it ain't going to be easy from a politi-

cal point of view because in one case we have to put the tank under a park.

Have you ever dealt with parkies?

I mean, they go crazy. But the fact is, we have to do it, and we will do it.

But it doesn't make sense. I have no problem in defending a reasonable rational action which is politically in disfavor. That's never bothered me because people are very smart. And after they get over their emotional response and you are willing to stand up and take it toe to toe with rational arguments, you can get them to understand it, not to agree, but to understand it. They will never understand the sludge. I'll never understand the sludge, because it is irrational.

That's my case.

Senator LAUTENBERG. Mayor, we thank you, Dr. Koch, for the scientific explanation.

Mr. KOCH. Harvey Schultz says he'll do the political. I did the scientific.

Senator LAUTENBERG. I would like to just say, Mr. Mayor, that I heard myself described essentially as irrational, the Emperor without clothes, and a few other things, and if it ain't going to do any good, so why do it.

Well, we think it might do some good. We think that it's part of a total problem, as you know. Senator Moynihan worked very aggressively with me and a couple of other colleagues to get a study of the New York Bight. It's a treasure that belongs to New York, to New Jersey, to actually the State of Rhode Island, the State of Delaware. We are talking about 11,000 square miles of water area, and we want to find out what the problems are, whether it is overflow, whether it is poorly administered dumping, whether it is illegal dumpers which you don't want and certainly I don't want. We are going to stop that. All of those things contribute to the problem, and we want to solve it.

Though we are not prepared this day to support the case that sludge dumping is directly responsible for toxicity or pollution to the marine environment, we are able to say with a degree of impunity that materials that are in the sludge when dealt with in laboratory environments with fish and with shrubbery and marine aquatic life, that there is harmful material there.

Now it is somewhat my view, like the cigarettes and lung cancer: you can't watch cancer being formed, but somehow or other a lot of people who smoke come down with lung disease. We know that when I visited the 12-mile site, the one that existed before, it was a pretty gruesome sight. Even from a helicopter it looked like a dead sea. I have seen mutated fish that came out of that area, and it was sufficient, I must tell you, Mr. Mayor, for me to at least say with some degree of comfort that there is a suspicion that that contributes to the total pollution problem that we have.

None of us want to spend money foolishly, but there is a cost to everything that we do. And we just perhaps may not recognize it immediately. But your comments are always of value. We appreciate your being here, and to your commissioner, we reserve the right to ask questions of you. If you would like to submit anything for the record, it will be open for 2 weeks. If you have anything

more scientific than Dr. Koch's comments, why we would invite you to submit those as well.

I would ask of my ranking member here, Senator Chafee, if he would like to ask some questions.

Senator CHAFEE. Thank you very much, Mr. Chairman.

Mr. Mayor, I just would like to make one point clear. You said the Federal Government is out of the sewage grant business. That isn't quite accurate. We are still at $2.4 billion. Every dollar of that in 1988 and I believe 1989 will be grants. Then the money starts into loans. But it isn't repaid to the Federal Government, it is loans within the municipality. So between now and 1994 the Federal Government will continue to put in $18 billion total.

Mr. KOCH. Good.

Senator CHAFEE. Now that doesn't handle all your CSO problems. Some of that can, but the bulk of it is for waste treatment.

One of the problems we have, so it has been reported, is that the sludge that emerges from New York is not properly treated. There are heavy metals and there are toxic materials in there. I wonder if you or your commissioner might respond to that problem.

Mr. KOCH. I will just defer to the commissioner, with your permission.

Senator CHAFEE. Surely.

Mr. SCHULTZ. Surely our sludge is treated in all of our 14 plants. There are some metals in our sludge. We just entered into an agreement with Federal EPA Region II last year to do industrial pretreatment programs, and we have arrangements to enforce those programs. So we are both working with the industry in New York City to abate all of the heavy metal flow to the degree possible through new systems into our sewage system, and we are enforcing those laws with very, very heavy fines which come to the Environmental Control Board which I chair for the mayor.

So we have actually implemented the industrial pretreatment program.

The other thing I would point out to you, that——

Senator CHAFEE. You are in the process of implementing it. Is it fair to say as of now there are still some heavy metals in there?

Mr. SCHULTZ. The major heavy metal in our sludge is copper, and a lot of that is due to the natural content of copper in our water system. Thirty percent of the copper that is in our sludge is actually generated by our pure water. We are engaged in efforts to study, in all instances, how to remove copper and other heavy metals out.

But we are currently operating the industrial pretreatment program as prescribed by EPA. We are currently enforcing it, and we are taking that very seriously.

Senator CHAFEE. Okay. Now the next problem is, and this is a factual problem, it is reported to me from our fishermen who are out there that all kinds of other material is way out there, not just off the shore which would normally be as a result of the blankets and everything else, syringes and all of that, getting into the combined sewer overflow facilities and just coming down the river and out, but at the 106-mile limit they are talking of all kinds of trash showing up in their lobster pots as they drag and as they fish. They say it has absolutely decimated the area.

Now, I suppose your answer is, that's not us.

Mr. SCHULTZ. No. We welcome you aboard one of our four barges to watch us discharge at any time you would like. You can show up anytime. We will take you there. What is in the——

Mr. KOCH. I'll go with you.

Senator LAUTENBERG. That will be a photo opportunity.

Mr. SCHULTZ [continuing]. Sludge disposal of, which based upon the tests we have done not only don't have any floatables or any materials of any sort, but they show nontoxic in all the monitoring we have done and EPA has done. So we welcome anybody to come and monitor.

Senator CHAFEE. Well, we have a factual problem here. And I am not saying it is you folks, but somehow massive dumping is apparently taking place of all kinds of what you might call solid waste that our people have told us is somehow mixed in with what you are taking out there in your sludge. Now you insist not.

Mr. SCHULTZ. We acknowledge, Senator, in Nassau or Suffolk there is a pleasure boat industry which is dumping. The mayor instructed Deputy Mayor Esnard to work with them in our own marinas to try to abate that. But I can unequivocally say to you that that is not coming from our sludge operation.

Senator CHAFEE. Now another problem that comes up is what they call short dumping. In other words, it's a long haul out there, 106 miles, and so you cut some corners and dump it at 56 miles or 90 miles instead of going the long haul. How do you monitor that?

Mr. SCHULTZ. We monitor that by having our own DEP people watching Moran Towing who takes our barges out there. We are currently looking to other systems since this has been an accusation that has been made. We have in fact consulted with the people who look into wrongdoing within our own department to ensure that this is not taking place.

But in all the times we have checked it, you know, we are not short running our sludge we transport it to the limit. We have renegotiated all of our union arrangements, our maritime pacts, we negotiated them out, and we reached a satisfactory solution to it. Basically we have people who have changed their shifts of work from 12-hour shifts to 48-hour shifts.

So we do not believe that's a practice, although we are always investigating that.

Senator CHAFEE. The final charge is that you do what they call rapid dumping as opposed—apparently in order to have it go out at a modest rate so thus it will be mixed and filtered in some fashion, if you dump it faster it just goes right down to the depth. I don't know what the depth is. It is quite deep there. And if you dump it suddenly, open the bottom of the barge in some fashion, it goes down in much more rapid fashion; thus coats the bottom, ends up on the bottom as opposed to the more measured dumping. Now is that a charge that you hear?

Mr. SCHULTZ. Yes. Everybody is always suggesting that that's happening, but it is not. As the mayor said, the composition of this sludge doesn't go to the bottom. It disperses laterally. It is in fact, almost the same weight——

Senator CHAFEE. If dumped at a m[illegible]t rate of speed?

Mr. SCHULTZ. Yes. It is dumped at a modest rate. Again, not to invite again, but any expert from this committee or other commit-

tees who would like to really review in detail our operations to ensure that we are in fact doing all the things that are required to ensure that the dumping at the 106-mile site is both correct and proper, we invite you.

We are constantly monitored by Chris Daggett at Region II and his people. But we offer anybody the chance to review our operations. We say to you we are not doing that.

Senator CHAFEE. Thank you.

Thank you, Mr. Chairman.

Senator LAUTENBERG. Thank you very much, Senator Chafee.

Senator Moynihan.

Senator MOYNIHAN. Just a few things, Mr. Chairman, thanking the mayor and Commissioner Shultz.

I think it might give the committee a sense of what is involved here if we could learn, how long does it take the tugs and barges to get to that 106-mile site?

Mr. SCHULTZ. It takes 24 hours, a one-way trip, and 24 hours back. That's why we had to renegotiate our labor package.

Senator MOYNIHAN. It is a 24-hour trip out in an ocean where the America would make the trip to South Hampton in 3 days.

Mr. SCHULTZ. Yes.

Senator MOYNIHAN. So you are not quite a third of the way across the Atlantic, but you are way out. How deep? How many fathoms are we at the 106-mile point?

Mr. SCHULTZ. I don't know. About a mile, we are about a mile.

Senator MOYNIHAN. So we are well off the continental shelf?

Mr. SCHULTZ. Yes, we are.

Senator MOYNIHAN. We are into the Atlantic Ocean?

Mr. SCHULTZ. Definitely.

Senator MOYNIHAN. Is there any bottom fishing in this part of the world?

Mr. SCHULTZ. No, there is not, and there are no shell fishing beds or other types.

Senator MOYNIHAN. If there were, they would be a mile down?

Mr. SCHULTZ. A mile down.

Senator MOYNIHAN. It would be a wholly different creature. The pressure, the water pressure of a mile down creates a fish unknown to the——

Mr. KOCH. The coliolanth.

Senator MOYNIHAN. He is the science advisor.

That creature that they catch once every 25 years, and it is the link with the primal sludge.

Mr. SCHULTZ. It is like the alligator in our sewer system.

Senator MOYNIHAN. Right. Alligators are well regarded on this committee.

But I think the point should be made; my physics is 45 years away from me now, but I don't think that any liquified measures discharged at that point couldn't make their way to the bottom. The pressure would just be too much for it. I don't think you quite know what it is like. The Secretary of the Navy knows, but a mile under the ocean is way down there. And fish can't get down there. Some fish can, a very rare fish can live in that pressure, not any fish that anybody knows, but no fishing—this is almost certainly dispersed in ocean currents.

I don't know. I would maybe promise to go out on a June day. I don't think I want this duty in February, thank you very much.

Mr. KOCH. We would take you out by helicopter so you wouldn't have to spend 24 hours.

Senator MOYNIHAN. I think you are probably into the Gulf stream there, aren't you? The currents would be north and east.

Mr. SCHULTZ. You are absolutely correct. Right. In other words, a lot of this dispersal doesn't go south.

Senator MOYNIHAN. If there is any movement of the water, if there is any surface movement, which there isn't, but arguing in the manner that lawyers argue, if there is, Your Honor, this would end up on the northern coast of Ireland and Scotland, isn't that right? Now we are in a lot of trouble.

Mr. SCHULTZ. Somewhere in between.

Senator MOYNIHAN. But there are palm trees on the coast of Scotland, and it is from this flow. So first of all, we can't get to the bottom, and any movement will end up in Scotland. Now that's a problem for the Committee on Foreign Relations, and we don't have jurisdiction.

But can I make another point, Mr. Chairman. We have enacted your legislation. We joined you, but it was your bill, S. 1714, in which the EPA undertakes, within 6 months after the date of enactment, the Administrator shall submit to the Congress a detailed schedule and the associated funding requirements for the complete restoration plan required by this subsection. Your legislation requires a complete restoration of the New York Bight from what very likely has been overuse and abuse over the last 50, 60 years. But we are out of that now. We are not into that at all.

Does that make sense to you in terms of—I think, if I can say, commissioner, if you could give the committee just a little better sense of what are the hydrographics of this situation?

Mr. SCHULTZ. Surely.

Senator MOYNIHAN. Those tugboats captains know what they are doing.

Mr. SCHULTZ. We will submit that to you.

Senator MOYNIHAN. Give us a real sense of where does the volume disperse, what are the internal currents, what are the wind situations. I think you will find that we are halfway to the Azores and the water flows toward Scotland and Ireland.

Thank you very much.

Senator LAUTENBERG. Thank you, Senator Moynihan.

Senator Breaux.

Senator BREAUX. Thank you, Mr. Chairman.

Thank you, Mayor Koch, for being here. I want you to know, Ed, that your candor and pearls of wisdom are sorely missed in the Congress. We are glad to have you back.

I am convinced, after having looked at this problem for a number of years, that a majority of the problem is things that float up on beaches, the floatables, the things that upset people is not the result of legally regulated dumping. By far, it is because of the illegal dumping that occurs of untreated materials that are thrown off the back of passenger ships or of transportation ships which we are trying to correct with other legislation. It is not because of legally regulated dumping.

The material we find on the beach is not from regulated legally licensed dumping such as this. It is because of the illegal activities that are occurring daily by foreign ships who come through our 200-mile zone and dump anything that they have on board; do it at night, do it during the day. It's a problem not just in the New England area, it's also a problem in the Gulf and in the Pacific. It's a worldwide problem. That's where I think most of our attention should be addressed.

Senator Chafee had mentioned and asked a question, how do you know when they go offshore that they are not doing illegal dumping or midnight dumping and not dumping at the site. You neglected, I think, commissioner, to mention requirements by the Coast Guard called Ocean Dumping Surveillance System that is now, I guess, being required to be placed on the barges and vessels that are towing the material out to sea. This scientific equipment is going to be located on the vessels, as I understand it, can tell when it is being dumped and how much is being dumped and can ensure that it is being dumped at the proper designated site.

I think that is a major improvement. EPA said back in 1981 that all vessels transporting the sludge must have the system installed and operating when it's available, and vessels not outfitted by the due date of May the 15th will not be authorized to transport it unless some unforeseen event arises.

I think that is a major improvement. Commissioner, do you have any comment?

Senator MOYNIHAN. Will my colleague yield for one observation?

Senator BREAUX. Certainly.

Senator MOYNIHAN. A further point, one which New Yorkers will be sensitive to, this is Moran Towing. They have been in that harbor for a century, and they have towed ships to the Normandy Beach, and they don't cheat. They don't have to cheat. They don't have to cheat because they have no competitors. But anyway, they don't.

Senator BREAUX. I take it now that the city is not doing this or New Jersey under a permit from EPA. Are you still operating under the court order?

Mr. SCHULTZ. Yes, we are operating under court order. We have filed for our permit with Administrator Daggett at Region II, and we are currently exploring those possibilities.

Senator BREAUX. The way you have been operating the court order, do you have to meet the same conditions and standards as if you had been granted an EPA permit, or is just the court saying go out and dump?

Mr. SCHULTZ. No. We are operating under the same operation we would be doing under the law. In addition, to answer your question, in the next 90 days we will have installed surveillance systems which you have noted that are required. So we are basically fully complying with all of the rules and regulations as they are already.

Senator BREAUX. The Marine Protection Act, requires that in order to get a permit to ocean dump you have to consider other alternatives before ocean can be granted. Ocean is the last resort, if you will, for getting rid of sewage sludge.

I note that EPA sent back New Jersey's permit applications and New York's permit applications because you did not in the permit spell out that you had considered these other alternatives. You have resubmitted, as I understand?

Mr. SCHULTZ. Yes, we have resubmitted and offered all of the work that was done for the City of New York in 1978 and 1981. That is currently being reviewed by Region II.

We have also discussed with them furtherance of those studies and discussions about looking at other options or perhaps doing demonstration projects which might look at the feasibility. But the cost estimates we provided you today come out of the work that we've done to look at the other alternatives. We have documents which we can submit as high as this which will look at all of that, and currently EPA is looking at it.

Senator BREAUX. A final point just for information. Incinerators that the mayor indicated the city is trying to build or is in fact building, I take it that is for solid waste incineration as opposed to sewage sludge?

Mr. SCHULTZ. Yes. We require approximately nine resource recovery plants which are approximately 3,000 ton a day plants. That would take a load of 27,000 tons a day. If we were to choose a sole incineration option for sludge, we would require an additional three incinerators to be sited in New York City which would mean, instead of nine, 12.

Senator BREAUX. Thank you very much, Mr. Chairman.

Senator LAUTENBERG. Thank you very much, Senator Breaux.

I wanted to just respond to a couple of the comments and take an opportunity to ask you a couple of questions, Mr. Mayor, before you leave.

One is, while there may not be any evidence of sea life, fish life at the lower depths, nevertheless it is a migratory path through there for species like swordfish, tuna, endangered whales, and threatened sea turtles. They do pass that way. There are residual materials there that are toxic. There are heavy metals, again. Maybe if they are diluted enough by the movement of the water, perhaps, and I wrap that around in parentheses, perhaps it is not harmful. But we are not going down that track right now.

The fact of the matter is that since 1975 about 125 cities and municipalities managed to end ocean dumping. Now I would have to ask, Mr. Mayor, were they foolish? Is there enough evidence in the practice or the custom that says, look, they stopped it because they were being forced out of the ocean. Was that a capricious act that said, listen, get out of that ocean and go spend your money, but those that remain dumping their sludge in the ocean, they are just more clever, they save money, and the others are idiots for having done it?

Mr. KOCH. Well, firstly, I think most of them, at least the commissioner has just conveyed that to me, didn't dump into the ocean. They probably dumped into lakes and into streams.

Senator LAUTENBERG. Well, Philadelphia is out there.

Mr. KOCH. I would never say that they are foolish. It becomes a question of alternate possibilities and the costs that are involved and the pressure that is imposed.

We believe quite correctly that we had to do what was necessary to deal with the solid refuse. And we have spent all of this money, and we are going to spend so much more.

The easiest thing to be in this world is an environmentalist. If you just simply take the position, I don't want to hear any arguments in opposition to a pristine condition, everybody loves you. Who could take fault with that?

The first time you say to them, but listen, there are options and alternatives and fallouts that result from everything that you do. You know, when I was here in the Congress I was one of the leaders, an environmentalist, and I am very proud of that. I mean, if you would bear with me, I would like to tell this little story.

Like most members of Congress, the single most attractive issue for my constituents in terms of mail was save the animals. Animal lovers, of which I am one, I mean, they are "rabid" is not exactly the right word——

But on this issue they are really, really strong. Larry Pressler mentioned that I had gone out West to a farm once. It was actually not in his State, it was in Iowa, Senator Culver had asked me to go out, then a member of Congress. The farmer with whom I stayed said, what kind of mail do you get, congressman? I said, well, my mail is really interesting. The number one issue, I said, is animals. This is what the mail is.

Number one, save the whales, and then save the dolphins, and third was, from my district, save the Jews, in that order.

In that order.

So what I am trying to convey is, everybody wants to be an environmentalist. But if you are in charge of a city or you represent in some other capacity, senators and members of the Congress, constituents from a city or a State, everything has to be perceived as options, options, and what is best overall. If you had totally clean air and you didn't allow a single smokestack, we would all breathe better, but we would be out of work. So you always have that matter of making a decision as to what is responsible.

What we are saying is that when there is such little money around, Senator Chafee said that you are putting in some money, but not the same amount of monies that you used to put in with respect to sewage treatment—you would agree on that. Well, if you wanted to have new plants or landfill used for our sludge, maybe you ought to re-enact the program 75/25. You wouldn't do that. You shouldn't do that any more because it would be a misuse of public funds. Not that it would be a misuse to help localities, because it wasn't a misuse before. But to take precious Federal dollars or equally precious city dollars to address a problem which is insignificant compared to other problems, and here I refer to the fact that you want to deal with the dirty beaches, you deal with it in another way, and we are prepared to do that—to make us spend money on both when money is not available, makes no sense.

That's my pitch.

Mr. SCHULTZ. I would just like to make one point in reference to your comment, Senator Lautenberg. Over the last three years we have in fact invested $42 million in getting to the 106-mile site just in capital costs. But it actually costs us approximately $15 million

a year to operate that sludge operation and changing over from the bight, from the 12-mile site to the 106-mile site.

Senator LAUTENBERG. That obviously is a relatively small cost, as you suggest, to the cost of providing an alternative. But that doesn't excuse any of us from searching for it.

The interesting thing is, Mayor, we always enjoy hearing from you. I don't want to try to match humor or wit, but I was disappointed in the sequence of saving whales, etc.

But we do find this, that in poll after poll across this country, not only are people screaming for a cleaner environment, for the first time they are willing to step up and pay for it, and they say so. That is recognition of the fact that this is a real problem that we have to deal with.

So we thank you very much for being with us. We note here the presence of Governor Kean from your neighboring State and my State. We will take a minute out from the committee to greet both.

[Recess.]

Senator LAUTENBERG. We will move along.

We want to welcome the distinguished Governor of the distinguished State of New Jersey to this hearing. We look forward to having your testimony, Tom.

We are also pleased to have Commissioner Dewling, our DEP commissioner from the State of New Jersey. We were pleased that you were able to join us. I saw you on Good Morning, America, I guess it was, at 7:00. I didn't know whether you did it last night at a pretaping or something of that nature. But seeing you here helps me reinforce our commitment to other means of transit besides the highways. We hope, as we examine the new budget, that we will continue to make the kind of service available that got you here from New York in fairly quick order. Though that's not the nature of the hearing, I know that you join me also in wanting to be certain that the budget includes the kind of transportation facilities like States like New Jersey and Rhode Island continue to need.

So welcome, Governor.

I would ask Senator Chafee if there is anything he would like to say.

Senator CHAFEE. No, Mr. Chairman. I just want to join you in welcoming the distinguished Governor.

Governor Kean, I am so glad you are here, and Commissioner Dewling.

Senator LAUTENBERG. Tom, please proceed.

STATEMENT OF HON. THOMAS H. KEAN, GOVERNOR, STATE OF NEW JERSEY, ACCOMPANIED BY RICHARD T. DEWLING, COMMISSIONER, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Governor KEAN. Mr. Chairman, Senator Chafee, thank you very, very much for allowing me to appear today.

I want to start off by commending you, Mr. Chairman, on your leadership on this issue and so many affecting the environment that are very helpful to the State of New Jersey, and of course Senator Chafee who has a long, long record, a positive record in being

for issues that really clean up air, water, and the soil in which we grow our food.

I would like to introduce Dick Dewling here, who has a long and distinguished record not only in the State of New Jersey but with the Federal Government in the area of environmental protection.

Governors are very much like you are as Senators in the sense that we find out what is going on by reading our mail. Since those dead dolphins and garbage tides of last summer, my mail is just piled high with letters from constituents who said they are fed up, that we can no longer treat the ocean like a cesspool or treat it like a garbage can.

Last month I received one such letter from an elderly woman who concluded by urging me to veto a tax cut that the legislature was considering. She said she would rather the government spend its money to clean up the ocean from pollution than have that tax cut money back.

Those unselfish kind of sentiments aren't unusual, in our State or in any other State these days. The people we represent are worried. They are worried that we could be the last generation to fully enjoy the ocean. They expect government to choose the right course of action. And I know if we do that that kind of tragedy simply will not occur.

I am proud that in New Jersey we are aggressively meeting that kind of a challenge. As we meet today our legislature back in the State is considering a 14-point plan to save the ocean and to save the shore. I am going to submit the details of that plan for your record. (See p. 68.)

I proposed in that plan that we as a State to show our commitment spend over $200 million over the next five years for everything from simply pick up more litter on the beaches, to accelerate industrial pretreatment programs and therefore reduce the need for ocean dumping to begin with. And even before the events of last summer I proposed a New Jersey Coastal Commission to help us better manage the ocean and really fight for its interest, whether it be in Trenton or in Washington.

I know New Jersey is not alone in that kind of an effort. I know the feelings up and down the coast on this matter. On the west coast as well as on the east coast I have gotten this from fellow Governors, other Governors, other legislatures. They are willing to make ocean protection a priority.

But the message from Trenton and the message I suspect from other State capitals is very simple, and that is that we need your help. The problems of the oceans of course know no boundaries. They don't respect the political theories of federalism. Six of the 14 points that I have in my ocean protection plan, for example, require some form of leadership or help from the Federal Government.

One of those actions had already been taken. Last year you passed and the President signed the MARPOL Treaty, and those of us in State government thank you for that action very, very much.

This year I hope you will act on a matter that is even more important to the environment. I hope this committee will make one of its priorities to once and for all end ocean dumping of sewage sludge and do so over the next 5 years.

Now this is not an easy argument for the Governor of New Jersey to make. As you know, my State is one of only two left in the country that continues to dump in the ocean. But half my State and half the State of New York and 40 other States don't use the ocean, learned to get out of the ocean. Only in northern New Jersey and in New York City are barges sent out over the horizon every morning to just dump their contaminated loan in what have become all too murky waters.

Since the Ocean Dumping Act was passed in 1973 the amount of sewage sludge dumped by New Jersey towns and cities has increased from 442,000 pounds per day to almost 930,000 pounds per day. Fifty-eight percent of the sewage sludge we produce is dumped right in the ocean.

Now why have these increased in New Jersey and New York occurred? Because we have done a good job. Because we have done a good job in upgrading waste water treatment facilities. We expect a 50-percent increase in the volume therefore in sewage sludge produced over the next few years that we continue to provide water that is cleaner and cleaner.

Now given my State's increased dependence on sludge dumping, it would be very easy for me to just come here and argue let's continue that practice. But we don't want to do what is easy. We want to do what is right for both the environment and frankly for our long-term economic health.

We cannot in good conscience argue any longer that the ocean is a safe, long-term disposal method. The truth is that the scientific evidence is more and more uncertain. We don't know any more the capacity of that ocean to take more and more sludge and garbage.

So by choosing ocean disposal over some form of land disposal, we are simply gambling. We are gambling on the unknown with the full knowledge that life, after all, comes from the ocean and what it would mean to us if that ocean was significantly damaged.

If we lose that gamble, think if we lose the gamble. Think what kind of a price that our children are going to be paying. In New Jersey just think of the economic consequences. We have a $7 billion tourist industry on the New Jersey shore alone; a regional fishing industry that earns more than $100 million a year. Even those numbers don't approximate the lost jobs and the ruined vacations and the degradation of natural resources.

We have a responsibility to pass on the way we got them to the next generation.

We can't any more argue as we used to that the ocean is the only viable disposal option for sewage sludge. We have made dramatic improvements in pretreatment to remove toxic metals from sludge and air control technology to allow us to burn sludge safely, and in source reduction technologies to cut the volume of any contaminants that are entering the waste stream.

These technologies are safe and they are practical. They are being used in this country and they are being used all over the world.

So as part of our 14-point plan we decided to try and halt ocean dumping and to do it as quickly as possible. Our Department of Environmental Protection has instructed our six sewage authorities to

develop plans for land based disposal alternatives and to locate those sites within one year.

Now we recognize that it's not going to be cheap. We estimate we may have to site six new incinerators at a cost of hundreds of millions of dollars. And New Jerseyans are going to see those costs in our sewage bills, no question about it.

But this is a price that we are willing to pay as one very important step to protect our ocean from destruction.

Now, as I say, we can't do it alone. New York and New Jersey are as dependent upon each other as one of those figure skating pairs we recently watched in the Olympics. Imagine if one skater spent a lot of hours practicing and learning how to do their skill and the other skater never practiced at all? The result would be fatal. The same result will occur if New Jersey tries to end the practice of sewage sludge dumping and New York continues.

To use an analogy more familiar I think to the chairman of this committee, it would be like allowing cigarette smoking in the fourth row of an airliner and not in the fifth row. Both passengers would face the same health threat.

Some have said the 5-year deadline is unrealistic. I disagree. New Jersey experience has proved that this is enough time to permit and site these facilities and begin construction. And if New Jersey can do it, then New York ought to be able to do it as well.

That's why we support so strongly the efforts of Senator Lautenberg to close the loophole in the existing law and ban ocean dumping once and for all. Only the Federal hammer is really going to force recalcitrant States to act responsibly.

I thank you for letting me share my thoughts today. But before I leave, let me just note that sludge dumping is not the only issue on which we need Federal assistance. We need your help in making sure that the deadline is met for relocating the dredge disposal site. And we need your support to keep EPA from designating a permanent wood burning site which they keep talking about somewhere off New Jersey's coast. Finally, we in New Jersey support Senator Bill Bridle's efforts to create a manifest system for monitoring hospital waste. And we urge you, I know the budget is very difficult, but I urge you to appropriate sufficient funds for Coast Guard enforcement against illegal dumping.

But sludge dumping, that's our first priority. When that last sludge leaves the harbor it will signify that the years of neglect, callous disregard for the ocean are finally behind us. It will signal that we appreciate the ocean, that we understand its fragile nature, and we also recognize the devastation to life not only in this United States but on this planet if that ocean was serious jeopardized. It will signal, in short, that we are up to the responsibility of passing on a healthier planet to those who follow us.

I will be glad, Senator, to answer any questions.

Senator LAUTENBERG. Thank you very much, Governor. That was an excellent statement. I salute you for your courageous approach to this problem because we do have communities within our State, as you note, who have not yet found suitable alternatives to ocean dumping of their sludge. And with your encouragement and with our help there, we hope that they will be able to find an alternative. We urge New York City to do its best as 125 other communi-

ties have done in the last 15 years to find a different way of getting rid of that stuff.

I am sorry that you didn't hear all of the mayor's remarks. They are always amusing, but they are always very insightful as well—not meaning that he intends to incite, but that he has good insight, s-i-g-h-t. He made the claim that that's not the only problem in the ocean. As a matter of fact, he said it wasn't any part of the problem.

We say that not only is sludge dumping but casual dumping, misuse of the landfill site that permits this junk to fall overboard is a problem as well, as is sewage overflow.

We want to work on all these things. When you talk about limits that we have to place on ocean incineration, if it is ever going to be, it has to be safe. That's a problem you have worked with so admirably on behalf of a better environment for our State. We appreciate those efforts.

I would like to ask you just a few questions. There are, aren't there, sewage authorities in New Jersey that once used the 12-mile site for sludge dumping that have now found alternatives to sludge dumping in the ocean?

Governor KEAN. Yes. There used to be 150 of them.

Senator LAUTENBERG. One hundred fifty in that State?

Governor KEAN. There are now six.

Senator LAUTENBERG. What role did the State play in helping them move away from that, can you tell me, Governor?

Governor KEAN. We helped them with the siting, we encouraged them obviously in every way we can, and give them some financial help too.

Senator LAUTENBERG. They have done it successfully now? I mean, they have been disposing of their sludge in ways other than ocean dumping and doing it successfully?

Governor KEAN. Seventeen percent I believe is incinerated and 15 percent is land applied.

Senator LAUTENBERG. Is there a way that the State could have encouraged or assisted the six authorities that are still using the ocean to move faster on eliminating their part in ocean dumping?

Mr. DEWLING. Senator, if you look at it very objectively, when the avenue is there for them to continue that practice, and through the court suit there wasn't that door that was shut. When we had the problem in Philadelphia there was a consent order that required certain actions through the court to end the practice of ocean dumping. I think Senator Roth this morning mentioned that as a mechanism for making sure it happens.

As long as that window of opportunity was there, we were sort of dancing with each other in terms of when we might end the ocean dumping practice. You know, you can still come up, you heard New York City say they were dusting off a study from the 1970's, a study that I was involved in doing in 1976–1977. Things haven't changed. The law allowed it to happen, and very honestly, it was the cheapest alternative that we had available to us.

Governor KEAN. Let me just give you an example if I could, Senator, because I think it applies also to something we are very familiar with in the Congress and the State of New Jersey. It is the cheapest alternative simply to throw things in the ocean.

We used to throw away all of our trash in this society as cheaply as possible. We used to in New Jersey open up landfills and allow people to throw garbage in them without the proper safeguards. We were so cheap that people from neighboring States used to come because it was the cheapest place to put the garbage.

Something happened. Because there were no liners, because there were no safeguards, things from those landfills oozed down in the ground, some of them entered groundwater, and we are not dealing with the problem of Superfund sites.

I see the same kind of potential in the ocean. Yes, it is the cheaper right now. Sure, it is very cheap for New York City, northern New Jersey, what have you, to throw things in the ocean.

But the long-term effects of the problems that may be caused could be so much more costly in the long run than if we did things right now.

Senator LAUTENBERG. It is not the kind of a gamble that we ought to take as you so eloquently stated in your comments.

It is certainly safe to say, isn't it, that there are processes by which this can be dealt with. And since that is the case, and since there is, if not proof, considerable doubt about the long-term effects, the negative effects of this dumping, we agree now that we've got to get on with the task of closing it down.

You said the pebble in the shoe is what got a lot of these communities out of the ocean. Wouldn't you think that the communities that now use the ocean for dumping, New Jersey communities, can meet a deadline by, we have proposed 1991 because that is how long the permit for the 106-mile site lasts. Don't you think that they can meet those deadlines?

Governor KEAN. We have suggested, I would have to have them answer the question, we have suggested five years as a proper timetable to totally get out. Obviously they are getting out in steps along the way, and some of them will be able to get out sooner than that. We have suggested five years is a reasonable timetable. If they can get out sooner than that, the more pressure that can be put on everybody to get out, the better it is.

Mr. DEWLING. Senator, one of the things that normally takes a lot of time is siting facilities. The thing is we went through that siting process several years ago, and I think you will hear testimony this morning from the fifth largest waste treatment plant in the United States of America, Passaic Valley, where the site is already there. I mean, we went through that agony in the late seventies.

So from the technical standpoint the ability to construct, design and implement, you are talking a four to five year increment that it can be done. That's assuming it is a full court press by everyone, Federal Government, local communities, county and State agencies in dealing with the permitting issue.

Senator LAUTENBERG. So you feel comfortable in establishing a 5-year target? You wouldn't, I assume, argue with our 1991 objective in saying, listen, let's get on with that. I don't want to propose waivers, I don't want to propose extensions at this point. You never do that when you establish a deadline.

But it is not certainly unreasonable in your judgment, Governor, commissioner, to expect that by 1991 much of the process ought to be underway?

Mr. DEWLING. I know the 1991 deadline was sort of identified with the lapsing of that site.

Senator LAUTENBERG. Yes.

Mr. DEWLING. I think that is a an appropriation direction to go. The question is, if there would be an extension beyond that time, there should not be this broad exception of saying everybody is continued to 1995 or 1998. That would be on a consent order basis that you would have in place a phased schedule for getting out of the ocean with a court ordered direction for time frames to do that.

So it is almost immaterial if it is 1991, 1992, as long as you know there is a finite end to the dumping practice through a court process. That's exactly what happened to Philadelphia.

Senator LAUTENBERG. Thank you very much.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

Governor Kean, I would just like to ask you one question. The land based alternatives that you talk about, those are incinerators?

Governor KEAN. Some of them. There are others also.

Senator CHAFEE. There are others, yes. I notice that on page 6 of Commissioner Dewling's testimony he talks about what is happening in New Jersey now. Currently of the sludge produced in all of New Jersey, 15 percent is land applied as fertilizer. That's extraordinary, isn't it? In other words, you have gotten all the heavy metals, you've gotten the toxics out. Where would you put it, on golf courses?

Mr. DEWLING. When you say all the metals out. There is no such thing as clean sludge. There is always some residual metal left. I mean, orange juice has cadmium in it. There are always essential elements that we have in our sludges.

We do not use this material on food products. We use it in agricultural areas for corn for animals or something like that, but it is not for a deliverable product to the human being because of that extra factor of safety. We use it in golf courses, we use composting for dividers on some of the highways. So we are using it. In fact, I use it in my back yard from my own town where I use it for plantings. So I mean the material can be utilized safely.

Senator CHAFEE. OK. So that is 15 percent. Seventeen percent is incinerated, 15 percent is taken out of State, and 53 percent is ocean dumped. So you've got a big challenge ahead of you, you folks do; that must be a substantial portion of your population.

Governor KEAN. It is.

Senator CHAFEE. Is that Newark and that area?

Mr. DEWLING. It is mostly north Jersey.

Governor KEAN. Yes, most of the northern centers of our State.

Senator CHAFEE. When you incinerate it, do you put it into your solid waste incinerators, is that the way you do it?

Mr. DEWLING. No. These are separate incinerators. You either use multiple hearth or fluidized bed incinerators with air pollution control systems to make sure that your air emissions for heavy metals or organics would be controlled.

The question here that we always have asked, whether or not you have sufficient capacity in the air sheds to handle that emission. We feel with the improvements in the technology that we have with the levels of treatment you can.

I mean, there are 48 other States out there that practice other alternatives other than ocean dumping. We are not technology limited in any way, shape, or form for incineration.

Senator CHAFEE. What do you mean we are not technology limited?

Mr. DEWLING. In other words, we have the technology to do incineration today without causing air pollution problems or without causing other environmental issues.

Senator CHAFEE. You must have some very controversial siting hearings, don't you?

Mr. DEWLING. Well, I think the point I mentioned before is that when we went through the initial effort to get out of the ocean, going back to the late seventies, we went through that agony of the siting. Many of the sewage authorities bought property adjacent to their facilities. I think you will hear this morning that the fifth largest treatment in the United States of America which happens to be in New Jersey already has the site on its existing facility.

So we don't have to go through as dramatic and an emotional issue of trying to find somewhere in somebody else's back yard to burn this material if that's the direction we have to go.

Senator CHAFEE. So you are convinced that these incineration facilities for the sludge meet all environmental standards, and you don't create a worse problem?

Mr. DEWLING. Well, I think we are confident that the emission limits that we have, an example is you heard Congressman Florio this morning talking about resource recovery. We have emission limits on our resource recovery that far exceed the Federal requirements. As an example, we have a dioxin emission limit. We would have the same type of emission limits for the sludge burning types of systems.

That doesn't necessarily say that we will definitely go to incineration. We have a more aggressive pretreatment program. Now obviously where you have a large contribution of industry it is going to be that much more difficult.

But if we have to go to incineration, the technology is there, the pollution control technology is there. I think you will hear from representatives from NJIT this morning, Dr. Magee, that that technology is there today to handle those problems.

Senator CHAFEE. Good. Thank you.

Senator LAUTENBERG. Thanks very much, Governor, Commissioner Dewling. I look forward to continuing our work on behalf of the environment. We have a bill under consideration now called the Shore Protection Act which is going to require that anybody who carries trash out to sea is going to have to get a permit, they are going to have to have a manifest. Otherwise, they are going to be breaking the law. So we've got a full court press on with this, and we hope that we will be able to look if not this summer, we will be gaining on it this summer and the summers ahead, that the days of yore when a trip to the shore, etc., etc., not intending to be poetic, will be easier.

Thanks very much for being with us.

The next panel, Dr. Davies and General Hatch.

Thank you very much. I am sorry that the schedule has moved as slowly as it has, but it has been a very interesting and worthwhile one. We look forward to your testimony.

Dr. Davies, we will ask you to comment first. You are the Director of the Office of Marine and Estuarine Protection of the EPA, and we look forward to hearing your comments.

We are going to get stricter now, and we would ask you to keep your comments in summary form to 5 minutes. We will turn on the clock. If you run a minute over or so, we are not going to lash you, but we will stay here with a heavy hand if it gets beyond that.

Thank you very much, doctor.

STATEMENT OF TUDOR DAVIES, DIRECTOR, OFFICE OF MARINE AND ESTUARINE PROTECTION, ENVIRONMENTAL PROTECTION AGENCY

Mr. DAVIES. Thank you, senator.

I am pleased to be here this morning, and I am going to confine my remarks to the implementation of title I. As you know, Christopher Daggett is sitting behind me who is the Regional Administrator for Region II, and I would prefer if you address your comments on the 106-mile site to him. He has the delegated authority for that permitting activity.

The Agency carries out four major activities under title I of the Marine Protection, Research, and Sanctuaries Act: permitting, site designation and management——

Senator CHAFEE. Doctor, I wonder if you could pull that mike a little closer and speak right into it.

Mr. DAVIES. Yes, certainly.

Senator CHAFEE. Thank you.

Mr. DAVIES. The agency carries out four major activities: permitting, site designation and management, regulatory development, and enforcement.

With regard to permitting, the MPRSA divides permitting responsibilities between the Corps of Engineers, which issues dredged material permits subject to EPA review, and EPA, which issues permits for non-dredged material disposal into the ocean.

The review of permit applications involves careful consideration of the potential impacts of the dumping, consideration of the need for ocean dumping, and the availability and impacts of land-based alternatives to ocean dumping.

Our marine impact criteria are intended to assure that dumping will not result in adverse impacts on marine life. In addition, applicants are also required to evaluate alternatives to the proposed dumping, including treatment of the waste to reduce its toxicity prior to disposal, analysis of recycling and reuse, and land-based disposal, in order to assure that the oceans are not used for disposal on the basis of short run economic considerations alone and that the oceans are protected from significant adverse effects.

I believe you have been given the table or the figure that describes the changes in the volumes of material that are being disposed into the ocean, which looks like this. Do you have that?

Senator LAUTENBERG. Yes.

Mr. DAVIES. Since enactment of the Ocean Dumping Act of 1972, there has been a substantial decline in both the number of dumpers and the amount of industrial waste being dumped. In 1973, there were approximately 6 million wet tons of industrial waste, and this amount has declined to approximately 0.3 million wet tons in 1986.

Turning to sewage sludge, while the number of dumpers has decreased, the volume of material dumped has increased from approximately 4.9 million wet tons per year in 1973 to approximately 7.9 million wet tons in 1986. The increase in volume is a result of upgrading existing wastewater treatment facilities.

The volume peaked in 1983 at 8.3 million wet tons per year and has remained fairly constant in volume since that time.

With regard to ocean dumping site designations, the MPRSA authorizes EPA to designate recommended times and locations for dumping. The ocean dumping regulations set forth factors to be considered in the site designation process in order to assure that the sites selected will minimize potential dumping impacts.

In essence, the site designation process is designed to select a site which is compatible with the category of waste to be disposed. Following selection of such a site, a permit application is reviewed to determine whether the material specified in the permit application may actually be dumped at the site.

The bulk of our site designation activities are for the designation of dredged material disposal sites for the Corps of Engineers under section 103 permits.

We cooperate closely with the Corps of Engineers in designating dredged material disposal sites. In 1987 we entered into a Memorandum of Understanding (MOU) with the Corps to facilitate and enhance cooperative efforts between our agencies. Under the MOU EPA will designate 21 dredged material disposal sites by the end of fiscal year 1988 and an additional 34 sites by the end of fiscal year 1991.

In addition to the permitting and site designation activities, section 102 of the MPRSA also charges EPA with developing criteria for the review of ocean dumping permit applications. The existing ocean dumping permit regulations were issued in 1977 and have been the focus of several legal challenges.

In the lawsuit *City of New York* v. *EPA* the court found that under the MPRSA, EPA generally cannot prohibit ocean dumping solely because materials fail the marine impact criteria, and that EPA must take into consideration the need for such dumping and the availability and impacts of land-based alternatives.

We also had a second lawsuit with the National Wildlife Federation involving dredged material.

In addition, since the issuance of the existing regulations, several changes have been made to the statute, and we are in the process of developing proposed regulations to address all of these issues. This has been a very long and protracted process within the agency.

In working on the proposed regulations, EPA is wrestling with issues involving the balancing of risks associated with marine disposal versus disposal risks in other media. Examples of such issues would include the relationship of the MPRSA to subsequent stat-

utes such as the Resource Conservation and Recovery Act which can prohibit or restrict the use of land-based alternatives. We are considering the potential benefits and the feasibility of using a waste disposal hierarchy which would require dumpers to look at waste minimization, recycling and reuse, and treatment before considering disposal; and the structure and framework under which land-based alternatives should be weighed and balanced when considering potential ocean dumping of material failing the marine impact criteria. And as I say, there has been an enorMOUs aMOUnt of debate within the agency on these issues.

We are also concerned——

Senator LAUTENBERG. Dr. Davies, what we will do is, we will take your full statement for the record.

Mr. DAVIES. Thank you.

Senator LAUTENBERG. We once again apologize for forcing you to put so much data into such short form, but that's life at the Capitol unfortunately.

General, we are happy to see you. Your responsibility, if you would identify it.

STATEMENT OF MAJ. GEN. HENRY HATCH, DIRECTOR OF CIVIL WORKS, CORPS OF ENGINEERS, ACCOMPANIED BY: BOB ENGLER, SENIOR ENVIRONMENTAL SCIENTIST, WATERWAYS EXPERIMENT STATION, VICKSBURG, MISSISSIPPI; AND DAVID MATHIS, CHIEF, DISPOSAL MANAGEMENT BRANCH, DREDGING DIVISION

General HATCH. Yes, sir. I am Major General Henry J. Hatch, the Director of Civil Works for the Army Corps of Engineers. I am honored to appear before the subcommittees to review our activities in response to Title I of the act in question.

With me today are Mr. David Mathis, our chief of Disposal Management Branch of Dredging Division in headquarters, and Dr. Bob Engler, who is senior environmental scientist with our Waterways Experiment Station in Vicksburg, Mississippi.

Sir, having had an opportunity to listen to the preceding testimony, I would like to very briefly, in somewhat layman's terms, ensure that we understand the distinction between the dredged material that I will talk about and the sludge that has been the subject of the discussion up until this point.

There are considerable differences. The sludge is highly organic; the dredged material is essentially mineral. The sludge is basically a fluid. In fact, it is less dense than the ocean; whereas the dredged material consists of particles, that don't float. They sink to the bottom.

For that reason, one of the principal distinctions is that the sewage sludge has some impact on the water column, whereas the disposed dredged material has some impact on the bottom. Therefore, there is a considerable difference between the two.

Acting on behalf of the Secretary of the Army we are responsible under section 103 of the Ocean Dumping Act for regulating the transport of dredged material for dumping into ocean waters. It re-

quires an independent assessment of the need for and alternatives to ocean disposal.

We follow EPA criteria. And I might add, I believe we work very closely with them in the Federal interest.

Other Federal and State laws do affect it: the National Environmental Policy Act, the Endangered Species Act, the Fish and Wildlife Coordination Act, the Marine Mammal Protection and Clean Water Acts, and so on.

We issue permits for non-Corps activities as part of our regulatory responsibility. Currently, about 95 percent of our ocean disposal is an adjunct to Federal navigation projects, projects authorized and funded on an annual basis by the Congress.

During the last decade through 1986 the Corps dredged an average of about 300 million cubic yards per year. A lot of that was maintenance dredging. Of that, only 18 percent had been disposed in that decade into the ocean.

We do expect some increase in that quantity, primarily because of some new projects authorized by the Water Resource Development Act of 1986 and the Navy's Home Port Initiative.

As I mentioned before, well over half of our material is fine to medium grain sand as distinguished from the sludge described earlier in this hearing. Most of that material is typically from ocean inlets. In most cases we don't expect a problem with the new work because essentially we will be digging into virgin soil, soil that has not been contaminated by the activities of man over the last century or so.

Given those very large volumes involved, we will direct our efforts to find alternatives to minimize the physical impacts. We are committed to that.

We are engaged rather extensively in an R&D program to ensure that we are carrying out the mandates of all the laws that apply to our activities. To aid this process we have funded well over $100 million in research on environmental effects of dredged materials and disposal alternatives. We have participated in annual scientific and policy meetings of the London Dumping Convention which has an impact on our activities from an international perspective.

Another agency I might highlight that we work very closely with is the National Marine Fisheries Service with whom we have a memorandum of understanding to explore means of using dredged material in a creative way—not to threaten habitat, but to create habitat. We believe we are going to get some good results out of that activity. We are now in the second year of that 3 year study with NMFS.

We have been conducting a number of multi-agency workshops on the beneficial uses of dredged material. In fact, more and more States and communities want that material used for some creative or constructive purpose rather than being excessively concerned for contaminants that might be therein.

Overall our dredging program for the current fiscal year is $550 million, and perhaps if it were after 2 p.m. I could describe the President's 1989 budget, but I am not at liberty at the moment to do so.

Finally, your invitation asked our views on the 106-mile disposal site for sewage sludge. I simply have to say that the Corps of Engi-

neers has no direct authority over this area, and I would defer to the EPA any questions you may have concerning the Administration's views.

Sir, I have a few more comments. In the interest of time, I believe I'll stop and respond to your questions.

[The prepared statement of Major General Hatch follows:]

Senator LAUTENBERG. I think you had the advantage of a slow timer there.

Thanks very much, general, for your comments. You know that the dredged material does raise some concerns, particularly in an area like ours because the dredged substance often has, as you appropriately described, man's interference or man-made deposits, PCB's, etc.

I just have one question, and then I will turn to Senator Chafee.

You have been asked to look at the removal of the dredged dump site from its present location, six miles off Sandy Hook, and look for something a little more distant and perhaps a greater depth. Are you looking at that?

General HATCH. Yes, sir, we are. Section 211 of Public Law 99-662 does require EPA to designate within 3 years a new site at least 20 miles offshore for the disposal of unacceptable material.

I might add, exactly what is unacceptable needs to be defined, because if it is totally unacceptable, we would never put it in the ocean in the first place. So we need to sort of define what is unacceptable and acceptable.

Senator LAUTENBERG. Would you take it up and get rid of it?

General HATCH. It has to go into another site, sir, an upland disposal site or someplace else. We will not dispose in the ocean any materials that, based on our joint criteria, are unacceptable for ocean disposal. Fortunately, that's a fairly small percent of the material we handle. Therefore, the economic impact of that is not——

Senator LAUTENBERG. So, you would not move that stuff, or if you did move it, I missed where you might——

General HATCH. Sir, we need to define acceptable material that we would continue the "mud dump" site for. Other material, if we can define the criteria, would go into the 20-mile area.

[The following material was provided subsequent to the hearing:]

Sir, as required by Section 211, the Secretary of Army, in consultation with EPA, is required to technically define categories of dredged material that can continue to be disposed at the existing Mud Dump. The remainder—that is material still environmentally acceptable for ocean disposal under EPA's environmental requirement—would require disposal elsewhere. The 20-mile ocean site that EPA is to desigate, would be one alternative available for the disposal of this material, along with upland, borrow bit or any other disposal alternative which may be found feasible on a case-by-case basis.

Mr. DAVIES. As you know, we did not have an appropriation specifically for this site. We have, however, reprogrammed some money and we are beginning work on a site designation process. We have not wrestled finally with this issue of the term of art that was created by the Congress of unacceptable dredged material. We have to, with the Corps, define that, and we have not done that.

Senator LAUTENBERG. Senator Chafee.

Senator CHAFEE. Just a couple of quick questions. First, how do you determine, general, whether the dredged material is sufficiently polluted to require special disposal?

General HATCH. Sir, we have a very extensive series of tests that we go through to insure that the material will be acceptable in the environment in which we will place it, be it an upland site or a water site, whether it is Puget Sound or the ocean. EPA and the Corps establish those criteria and we follow them rigidly.

Senator CHAFEE. So the EPA sets the criteria?

General HATCH. Yes, sir.

Senator CHAFEE. The next question, in your testimony, at the bottom of page 7, you talked about constructing 30,000 acres of new wetlands in Louisiana. That sounds encouraging, if indeed it can be done. Can it?

General HATCH. Sir, one of the major environmental and perhaps economic challenges to the State of Louisiana is the loss of the tidal marshes.

We have a requirement to keep the Port of New Orleans and above open and functional, necessitating that we provide a lot of dredging on an annual basis. We are seeking ways to use that material so that we can protect those marshes in order to retard what is a very dramatic land loss that some day threaten New Orleans itself.

Senator CHAFEE. Well, if you can do it, that's wonderful.

Finally, I noticed your discussion of these home porting facilities for the Navy. That is the new home port they are going to have for these battleship groups?

General HATCH. Yes, sir.

Senator CHAFEE. Maybe under the new budget that would be cut out. That would save you a lot of disposal problem, right?

General HATCH. That would reduce our challenge, sir.

Senator CHAFEE. Reduce your challenge. All right, that's another way of putting it.

Senator LAUTENBERG. Well put, general.

Senator CHAFEE. OK. Thank you.

Thank you, Mr. Chairman.

Senator LAUTENBERG. Thanks very much, gentlemen. The shortness of time that we allotted you doesn't indicate any lack of interest. We may submit questions to you in writing and ask you to respond, and we will take your full statements for the record.

Thank you very much.

The next panel is Chris Daggett, the regional administrator, Region II, Mr. Sheldon Lipke, David Borden, Dr. Magee, Mr. Cliff Curtis.

Thank you very much. Whether it is typographical, alphabetical, problematical, there is no particular order, but we will take them the way we've got them here. And that is to ask Chris Daggett with whom I work a lot and who does a very good job in our region in looking after the environmental interests of our area as well as generally.

Chris, welcome. We invite you again to keep your testimony fairly brief and we will take your full statement. We already have your full statement. So if you could summarize if you can.

STATEMENT OF CHRISTOPHER J. DAGGETT, REGIONAL ADMINISTRATOR, REGION II, ENVIRONMENTAL PROTECTION AGENCY

Mr. DAGGETT. I will. Thank you, Senator, and thank you, Senator Chafee, as well.

My name is Chris Daggett. I am the Regional Administrator for Region II of USEPA. The region covers New York, New Jersey, Puerto Rico, and the Virgin Islands.

My testimony will review briefly the recent history of the disposal of municipal sludge in the ocean in Region II, including a discussion of the phase-out of the former 12-mile disposal site, the status of current dumping at the 106-mile site, and our review of permit applications for that site, our program to monitor the 106-mile site, and the status of the Ocean Dumping Surveillance System.

The 12-mile sewage sludge disposal site had been in use since 1924. In recent years, it was used by nine dumpers: the City of New York and Westchester and Nassau Counties in New York, and six sewage authorities in New Jersey. The volume of material dumped, as you heard earlier today, was about 8 million wet tons in 1987.

In April 1985, we formally denied petitions to redesignate the 12-mile site and subsequently established with the nine dumpers court ordered schedules for moving their disposal operations to the deepwater municipal sewage site, or the 106-mile site by the end of 1987.

As of January 1, 1988 all disposal is now taking place at the 106-mile site under the existing court orders.

In July 1986, EPA notified the nine sludge generators that they would be required to submit complete MPRSA permit applications for the use of the 106-mile site. We requested that these applications be submitted no later than January of 1987. The existing court orders control the disposal operations until such time as EPA has received and acted upon complete permit applications.

In November, Region II completed its review of the permit applications. We found them to be incomplete in their evaluation of alternatives. We gave the applicants until January 19 of this year to submit additional information.

The applicants did submit additional information on incineration, landfilling, and/or composting on January 19, and the region now is in the process of reviewing those applications and that additional information.

As part of our site management responsibilities EPA has prepared a monitoring plan for the 106-mile site. It's objectives are to assess the actual and potential impacts of sludge disposal on the marine environment at the site and to assess compliance with permit conditions.

Data collected will be used in making decisions regarding continued designation of the site, the status of disposal permits and the design of future monitoring programs.

Much information on chemical and physical characteristics and baseline conditions at the 106-mile site already exist from studies performed during the past decade. In August 1987, EPA conducted a survey at the 106-mile site to track the dispersion and settling of the sludge plumes.

Four ocean dumping events were monitored. Preliminary findings are that the plumes are extensively mixed in the upper 20 meters of the water column while being transported horizontally by strong currents.

The plumes were often tracked well outside the designated boundaries of the dump site for a period of up to 8 hours or 10 miles outside the site's boundaries. Water quality impacts are still being analyzed.

A second plume tracking survey is scheduled for later this month, in fact, it will go out next week, to compare winter and summer oceanographic conditions.

Designation of this site expires, as you know, in March of 1991, and redesignation will depend in part on whether there is a continuing need and on the results of this monitoring.

Another aspect of the use of the 106-mile site is the development and installation by the Coast Guard of an Ocean Dumping Surveillance System. In 1981, EPA stated that all vessels transporting sludge to this site must have the ODSS installed and operating when available. In November of last year EPA, working in cooperation with the Coast Guard, notified the dumpers that the ODSS must be installed by May 15, 1988. Vessels not outfitted will not be authorized to transport sludge unless unforeseen events arise.

Finally, you asked that I comment on proposals for prohibiting the disposal of sewage sludge in the ocean after 1991.

The need for disposal of sewage sludge after 1991 will be evaluated in the context of the agency's current policy.

First, we will as an overall principle protect the oceans from significant adverse effects of waste disposal. We will particularly assure that they are not used for cheap waste disposal as a matter of short run economic considerations alone.

Second, in any specific case we will allow ocean disposal of a waste only if the applicant can show that no practicable alternatives are available that have less impact on the total environment.

EPA will apply a rule of reason in determining that practicability.

Finally, for the long run, we will actively encourage environmentally beneficial approaches such as waste minimization, recycling, or reuse.

I thank you for your attention, and I would be pleased to address any questions that you have.

Senator LAUTENBERG. Thank you very much.

Mr. Lipke.

STATEMENT OF SHELDON LIPKE, PASSAIC VALLEY SEWERAGE COMMISSION, PASSAIC, NJ

Mr. LIPKE. Mr. Chairman and committee members, on behalf of the Passaic Valley Sewerage Commissioners and our executive director, I would like to thank you for the opportunity to share some of our thoughts about sewage sludge disposal with you.

Located in Newark, New Jersey, the Passaic Valley Sewerage Commissioners operates the fifth largest wastewater treatment plant in the United States which we constructed at a cost of over $550 million. We serve approximately 1.5 million people, and also

you, Senator, and 350 major industrial plants in 35 cities and towns in Northern New Jersey, including Newark, Jersey City, Paterson, and Passaic. Our industrial users are paper recyclers, pharmaceutical manufacturing, a brewery, chemical manufacturing, electroplaters, electronics manufacturing, and textile dyers. They contribute, that is, the industries contribute 55 percent of the conventional pollutants entering the plant. Passaic Valley contributes 16.3 percent of the sludge that is dumped at the 106-mile site.

We believe that there is no evidence to show that ocean dumping of sewage sludge is more harmful to the environment than other methods of sludge disposal, such as incineration. However, rather than debate the scientific merits of ocean disposal, we would like to speak about the practicality of ending ocean dumping by 1991.

PVSC has successfully implemented a pretreatment program to control the discharges from industries covered by EPA categorical standards. In spite of the success of our program, our sludge is rated Class C by the New Jersey DEP and is inappropriate for land type of disposal such as composting or land application.

Therefore, the only land-based sludge alternative available to us is incineration.

In 1977 when it appeared that ocean dumping would end by 1981, we attempted to secure an air pollution control permit from the EPA and the DEP for our sludge incinerator. Our last submittal to the agencies was in 1981 where we proposed air pollution control devices which would be considered state-of-the-art even today. We were never granted a permit for this incinerator, and therefore we did never move forward on the project, even though we are still interested in this project today and we have expressed interest with the DEP in the intervening 5 years.

In the intervening years we met with many vendors of innovative sludge treatment processes in order to find a process which we could permit and implement to end ocean dumping. Most of these processes were experimental, and none could guarantee that they would work.

We tried to basically privatize our sludge disposal. And we really couldn't find anybody that could offer any kind of guarantees that they would have any success.

When the 12-mile dump site was closed we negotiated a schedule with EPA to move to the 106-mile site, and as of January 1st all of our sludge is being disposed at the new dump site.

The DEP has proposed a modification to our discharge permit which would have us start planning for a land-based alternative to ocean dumping. Of all the ocean dumping authorities, we believe we have done the most work towards finding a land-based alternative.

In our case, sludge incineration with advanced air pollution control equipment is the only practical method of land-based sludge alternative.

As part of the comments we submitted to the NJDEP on the permit modification, we prepared cost estimates and a timetable for implementing a sludge incinerator.

The schedule consists of three major phases. The first phase is the preliminary design of the incinerators and the submission of the air pollution control permits. The task is projected to take 2¼

years, that's for preliminary design and air pollution control permits.

Based upon our experience with the 1981 application for our air pollution permits, we believe that additional pretreatment beyond the categorical standards will be required to permit such an incinerator. The next phase therefore is to promulgate local pretreatment limits which will be based upon the results of air dispersion modeling during phase I.

Four and a half years will be required to design and issue local limits for the industries to design and install the equipment needed to meet the stricter pretreatment limits. What I mean by this is that we will issue the limits. The industries must go out, hire engineers, design pretreatment plants for each type of industry, build them, and then get them on line.

The last phase will consist of the design and construction of the incinerators. We think this will last for five years.

When we started this work we didn't realize exactly how long this process would take. So apparently we now believe that we cannot implement this solution until late in 2001, a sludge odyssey.

We believe that our schedule accurately reflects the many steps necessary to construct the major facility which will meet the stringent requirements of the NJDEP's air pollution regulations.

Should Congress decide that a halt in ocean dumping of sludge is in the national interest, we respectfully recommend that EPA be given the responsibility of formulating and enforcing a rational realistic program that would lead to a viable land-based sludge alternative.

We estimate that the cost of ending ocean dumping will increase our budget by 32 percent or about $18 million per year, of which $13 million would be for debt service on the $140 million capital costs, that's 1988 dollars, and O&M would be about $5 million a year.

Senator LAUTENBERG. Thanks very much, Mr. Lipke. There's a paragraph or two that you didn't get in, but again we have your full statement. Thank you very much.

I don't know whether you deliberately identified me as a user, but I will have to pay my fair share on the better job.

Mr. Borden I guess is next. We welcome you, Mr. Borden.

Senator CHAFEE. Yes, Mr. Chairman. I would just like to introduce Mr. David Borden to the panel. He is currently the principal marine biologist for our State, the State of Rhode Island. He is the lead marine fisheries representative for Rhode Island on the New England Fisheries Management Council and also chairman of that council. So we are delighted to have Mr. Borden here and look forward to his testimony.

STATEMENT OF DAVID BORDEN, CHAIRMAN, NEW ENGLAND FISHERY MANAGEMENT COUNCIL

Mr. BORDEN. Thank you very much, Senator Chafee.

In light of the previous comments, I'll try to summarize my statement. I would ask that it be formally submitted and included in the record.

Senator LAUTENBERG. Without objection.

Mr. BORDEN. The concerns of the fishing industry I think were quite adequately addressed by Senator Chafee early on. I think it is important to keep in mind that in terms of the fishing industry we have, just in the New England and Mid-Atlantic area, an industry that is valued at $560 million. In addition to that, there are millions of recreational fishermen who, on an annual basis, participate very aggressively up and down the coast seeking various species of fish.

A number of previous speakers have commented as to the effects that ocean dumping would have or the lack of effects that ocean dumping would have. I think that the common perception in the industry is that this practice should be stopped and stopped immediately.

Our council, in fact, strongly endorses the efforts of both the chairman and Senator Chafee and the other sponsors, and we would wholeheartedly hope that you would aggressively pursue the implementation of this type of legislation which would mandate an end to all ocean dumping.

In my written presentation you will find a number of exhibits which I think might answer some of the questions that the various Senators have raised at other points.

It is important to note the first exhibit, Exhibit No. 1, essentially is a diagram of the area of influence as calculated by the National Marine Fisheries Service. That is from one of a series of technical memoranda and specifically identifies the area which could be affected by ocean dumping at the 106 site.

The fishing industry is extremely concerned by the types of chemicals that are included in the sludge that ultimately gets dumped at this site. As part of the testimony that Senator Roth submitted, he included statements by John Bryson who is the Executive Director of the Mid-Atlantic Council. Mr. Bryson included as part of his written testimony essentially an outline of the types of chemicals that are included in sludge. And without repeating the whole list, they include things like zinc and copper, cadmium, arsenic, PCB's—a whole host of what I consider extremely toxic waste.

The suggestions that those wastes will not have any effect on marine life I think should be scrutinized carefully. The impression of the fishing industry is that over time, and this has been proven out by the biological results at the 12-mile site, those types of chemicals have a way of finding their way into the ecosystem and being channeled up through the different trophic levels, up into the higher levels where a lot of our recreational fishermen target.

Specifically, you will note as part of my prepared testimony there are diagrams of species contributions and distribution. What you will find is that there is a whole host of very important marine species that inhabit the zone which immediately abuts the dump site.

One of the concerns is given the current patterns in this area and in particular the fact that you have warm water eddies that move through the area and take these pollutants inshore, that eventually they will find their way into the ecosystem.

So as I indicated before, the New England Council and the Mid-Atlantic Council strongly endorse the efforts of the sponsors of the

legislation. We would hope that you would be able to effect an end to ocean dumping in the very near future and do it in such a manner that we essentially can preclude having to come back here 5 years from now and testify on the same legislation.

In conclusion, I would like to point out that the fact that this distinguished group is, and in the past has been, faced with various initiatives on restoring the bight and restoring the biological integrity of the bight should adequately document the potential for problems from waste dumping. Essentially what we have done here is move that waste offshore.

Thank you very much.

Senator LAUTENBERG. Thank you very much, Mr. Borden.

Dr. Magee from one of my favorite institutions, the New Jersey Institute of Technology.

STATEMENT OF DR. RICHARD S. MAGEE, EXECUTIVE DIRECTOR, HAZARDOUS SUBSTANCES MANAGEMENT AND RESEARCH CENTER, NEW JERSEY INSTITUTE OF TECHNOLOGY

Mr. MAGEE. Thank you.

Senator Lautenberg and Senator Chafee, I am Dr. Richard S. Magee, Executive Director of the Hazardous Substance Management Research Center at New Jersey Institute of Technology, and I might add an avid recreational fisherman.

I appreciate this invitation to testify on alternatives to the dumping of sewage sludge at the 106-mile site off the New Jersey Coast.

If ocean dumping is to stop, sewage sludge must be treated to make it environmentally acceptable for land disposal. There are two candidate treatment technologies: incineration and composting. I will briefly discuss the status of these options.

Incineration. Since 1934 when incineration was first used as a sewage sludge disposal technique, over 400 incinerators have been constructed. Over half of these were built between 1965 and 1975. The recent estimates are that there are 228 sludge incinerators operational at 132 facilities.

A variety of different technologies are available for incineration of municipal sewage sludge. By far the most common is the multiple-hearth furnace. Fluidized bed furnaces account for most of the additional incinerators currently operating in the United States. Some electric (infrared) incinerators are used in smaller rural communities.

The basic multiple-hearth furnace design is nearly a century old. The capacity of MHF's used for incineration of sewage sludge typically range from 600 pounds per wet sludge per hour up to 18 tons per hour.

The first fluidized bed incinerator designed specifically for incineration of sewage sludge was installed in 1961 in Lynwood, Washington.

Fluidized bed incinerators have sludge loading rates of up to five times higher than multiple-hearth furnaces, making this technology particularly attractive. Burning capacities of fluidized bed units range from one-half to 15 tons of wet sludge per hour.

The electric furnace is the newest of the technologies currently in commercial use. Most of these units were installed in the middle

and late 1970's and capacities are usually less than one ton of wet sludge per hour.

Obviously a major concern is the emissions from incinerators. Let me briefly discuss this concern.

Control technologies for sewage sludge incinerators can be grouped into two categories: combustion control and flue gas control.

Proper control of combustion has been shown to be effective in controlling particulate emissions, with up to 85 percent reduction, and in reducing fuel consumption. Add on control devices such as venturi/impingement-tray scrubbers have been demonstrated to be effective for control of particulate emissions. In fact, sewage sludge incinerators have historically been controlled by wet scrubbers.

Over 90 percent of the incinerators built since 1978 employ venturi/impingement scrubbers. Recently fabric filters and ESP's have been utilized for particulate control. Afterburners are potential controls for organic compound emissions; however, as yet they have not been employed on sewage sludge incinerators.

In general, particulate removal efficiencies of 98 to 99 percent are readily attainable, and trace metal removal efficiencies exceed 90 percent.

Hence, a properly controlled combustion process, coupled with a well-maintained modern air pollution control system can minimize flue gas emissions protecting both the environment and public health.

Let me now address composting. Composting has come into widespread use as a wastewater sludge treatment process during the last several years. Most sewage sludge, even those containing high levels of hazardous substances, can be composted.

A 1985 nationwide survey showed 78 operating sludge composting facilities, 62 in various stages of realization, and five that had been shut down. The major cause of shutdown was nuisance odor. This is also a problem at some operating facilities.

This has raised questions regarding the technical feasibility of this alternative. Unfortunately, in the past the employment of improper design criteria to composting facilities has created problems. Many of these difficulties can be attributed to a lack of attention to microbial heat generation/temperature interaction.

Living organisms have a narrow temperature tolerance range and a sharp decline in microbial activities occurs above 60 degrees Centigrade. All too often current designs lead to destructive temperatures because of inadequate pile ventilation and a lack of temperature feedback controls leading to "microbial suicide" in the compost pile, odor problems and excessive construction and operating costs.

As the scientific parameters which govern the design and operation of the composting system are better defined, this should lead to tighter design of future composting systems which can lead to more economical operation and smaller buffer zones.

In summary, bans on ocean sludge dumping should not be delayed because there are "no technological alternatives". Both incineration and composting are available, demonstrated technologies. We cannot afford to delay the implementation of these technologies.

I thank you for this opportunity to address the committee on this critical issue, and I would be happy to answer any questions that you may have.

Senator LAUTENBERG. Thank you, Dr. Magee.

Mr. Curtis, we look forward to hearing from you now.

STATEMENT OF CLIFTON E. CURTIS, PRESIDENT, THE OCEANIC SOCIETY

Mr. CURTIS. Thank you, Mr. Chairman and Senator Chafee.

I appreciate the opportunity to testify today on behalf of each of the organizations listed on the cover of my prepared testimony. As you can see, Senator Lautenberg, several of those organizations are near and dear to you as constituents along the Jersey shore.

Too often our ocean and coastal resources are mismanaged due to narrow, short range special interests with inadequate scientific understanding of the consequences. We have seriously damaged some of our coastal waters where marine life is more plentiful.

Much less is known about long-term threats to the deeper oceans, but there are strong signs of damage there too. An ecological ethic is essential in order to ensure the protection, conservation and wise use of our vital marine resources.

Historically, in 1970, the Council on Environmental Quality called for enactment of a comprehensive domestic law to address issues related to ocean dumping. In 1972, as you and others have said this morning, the Ocean Dumping Act was enacted. That regime, in letter and in spirit, recognizes the need to protect the marine environment, and it provides a framework for achieving that objective.

In its 1970 report the CEQ also highlighted a number of underlying principles that served as the foundation for their call to action. I have quoted some of those principles in my prepared testimony.

Regrettably, far too little progress has been made, though, in the past 18 years in addressing those principles. As is often the case, passage of a new law can be the easiest step. Effective implementation and enforcement is where it's at, though. And the track record since 1972 provides some pretty clear examples that the Ocean Dumping Act, despite some notable successes, has been a paper tiger.

Our Environmental Coalition strongly opposes ocean dumping of sewage sludge, dredge spoil, industrial and radioactive waste which is contaminated with significant levels of persistent toxic pollutants. Our concerns with respect to ocean dumping of sewage sludge, as discussed in detail in my testimony, include the following five points:

First, dumping at the 12-mile site has seriously degraded the ocean environment with disastrous consequences for fish, shellfish, the marine ecosystem and coastal habitat.

Second, the 106-mile site is an unacceptable site for sewage sludge dumping. First, recent research at the site suggests that it already may be heavily stressed; second, it is not suitable for monitoring; and, third, dumping risks serious adverse impacts on other uses and activities, including commercial and recreational fishing,

which is a multi-million-dollar industry along the Northeast Atlantic coast alone.

With all due respect to Mayor Koch's comments earlier this morning, I would suggest that his scientific characterizations with respect to the 106-mile site reflect voodoo science. Contrary to his statements, there is clear and convincing evidence of impacts to the 106-mile site, past and ongoing. And there is also information, as has been put into the record today, that the site, in terms of oceanic processes, can have a significant impact on fisheries and the marine ecosystem. While it is not the only problem, sewage sludge dumping is one of the concerns that needs to be addressed.

Third, for sewage sludge dumping we need a new environmental impact statement under the National Environmental Policy Act, and the National Marine Fisheries Service also needs to address the impacts to endangered and threatened species, marine mammals, turtles, sea birds.

Fourth, as the prior witness has just indicated, there are alternatives to sewage sludge dumping They exist and immediate steps need to be taken to pretreat and reduce industrial waste. Ocean dumping falls at the low end of the hazardous waste management hierarchy, and far too little effort has been directed to environmentally preferable alternatives.

Finally, with respect to sewage sludge, until alternatives can be instituted, all sewage sludge dumping operations need to be strictly monitored and enforced. Effective enforcement is lacking, and surveillance efforts must be increased.

With respect to the legislative initiatives, our coalition believes that one of the most important outcomes of this current focus must be to send a clear unequivocal message: ocean dumping of sewage sludge is ending; enough is enough.

With that objective in mind, we look forward to working with you, Senator Lautenberg, and other members in both the Senate and House to accommodate good faith efforts to implement environmentally preferable alternatives. Good faith efforts, though, are essential, because there have been substantial longstanding warnings: the 1970 CEQ report; the 1981 statutory deadline; and the countless ongoing studies that show harm to the marine ecosystem.

In my prepared testimony I address several other activities covered under Title I of the Ocean Dumping Act—dredge spoil disposal, radioactive waste dumping and ocean incineration. For each of those activities, there are special environmental factors that merit close scrutiny.

Thank you, Mr. Chairman, for the opportunity to testify.

Senator LAUTENBERG. Thank you very much, Mr. Curtis, and we invite you and any of your colleagues on the panel to submit any evidence you have that identifies the harmful result of this site or the 12-mile site as it was used. We would also ask you to make a counteroffer to anyone who can prove that there is no harmful effect to submit that as well.

I get kind of a universality of view, other than Mr. Lipke's obvious concern, it is a major undertaking, and it is the kind of thing that as much as we would like to expedite it, there are some things that are going to have to be done in sequence. But we would urge, Mr. Lipke, that you take the message back to the commissioners of

the sewage authority that they had better get going because one day the gate may be locked, and they might have to resort to a very expensive court process in order not to conform. So whatever they can do to expedite it.

I wanted to ask Chris Daggett whether or not you did any specific evaluation about the potential effects of ocean dumping.

Mr. DAGGETT. At the 106-mile site?

Senator LAUTENBERG. The 106-mile site.

Mr. DAGGETT. There has been some investigation or some surveillance monitoring activities that have been underway. We now have a boat again going out next week to complete or to continue our efforts on monitoring. So, yes, we have an ongoing program to do that.

Senator LAUTENBERG. You wouldn't at this juncture, would you, say that you are satisfied that there are no harmful effects as a result of ocean sludge dumping?

Mr. DAGGETT. I wouldn't say there weren't, and I wouldn't say that there are. I mean, I think there are certainly some impacts. The question is, we need to assess the nature of those impacts and whether or not they are significant enough to warrant some change in our approach to the dumping that goes on right now, and to hopefully give you and your committee and others who are looking at legislation on this an opportunity to assess it from a scientific standpoint.

Senator LAUTENBERG. Because the one thing, and I think it was Mr. Curtis or Mr. Borden that pointed it out, and that is that the effects are not necessarily directly contained in the dump site area, but rather this is the nature of the ebb and flow of the currents and you don't quite know where it takes you.

Mr. DAGGETT. That's correct. In fact, I testified that we have evidence that it has already, we have tracked it outside the site. I think that's the question.

Some people in previous panels had talked about the fact that it does not make it to the bottom. Well, that indeed may be the case, but in fact we don't know where it does go. And that's part of the unknown, if you will, of this whole issue that I think a number of people have raised concerns about or at least a number of questions.

Senator LAUTENBERG. Thanks very much.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman. Once again I want to thank you for holding these hearings.

I have a couple of questions of Mr. Daggett. On page 38 of Mr. Curtis's testimony it talks about the industrial waste dumping. And I must say, I was stunned to find that it is still possible Dupont has a permit pending to continue dumping approximately 50,000 metric tons of aqueous acid iron waste at the 106-mile industrial waste site. Obviously they are permitted to do that or have been.

Mr. DAGGETT. That's correct.

Senator CHAFEE. Would you explain that?

Mr. DAGGETT. Let me if I may though put this a bit in context. Dupont dumps at the industrial site and Allied still dumps some wastes at the acid waste site. Some 10 to 15 years ago there were

over 200 dumpers dumping, and we are now down to one dumper at each of those sites.

The permit application for the Dupont site is now before me for consideration, and we are taking a hard look at it. I have to say though, unless I am incorrect, I think they did not use or take advantage of that permit last year. They had a permit, but I believe they did not use it in the course of the whole year—excuse me, since June.

Senator CHAFEE. I am really more interested in the type of waste that is dumped. I mean, obviously you must inspect to see if it is damaging, and the acid waste in connection with the Allied Chemical.

Mr. DAGGETT. That's correct.

Senator CHAFEE. Is that not damaging?

Mr. DAGGETT. Well, I think the feeling has been that, and indeed the impacts are assessed, and that's part of what they put in their permit application, some assessment of it, the impacts have been mostly deemed to be short term and very quick. In other words, there is an immediate impact perhaps of the acid material hitting the surface of the ocean, but they are very quickly neutralized. And that has been the basis in the past I think for a determination that while it may have somewhat of an impact, it is not significant enough to warrant denying the permit outright.

Senator CHAFEE. Under existing law and court interpretations, there is nothing you can do about preventing municipal waste sludge dumping if it is not environmentally harmful in some clearly provable way; is that correct?

Mr. DAGGETT. That's correct. In fact, I appreciate your underscoring that point. It was testified to earlier I believe by Congressman Florio that it is EPA that allows this dumping to occur. And I think it is really a combination of EPA and the Congress. There is indeed a provision for that in the law, and through the court order, as you know, that is ongoing. And yes, people can make application to dump and we must review those applications.

Senator CHAFEE. You have to grant it under Judge Sofia's decision.

Mr. DAGGETT. That's true, we have to grant it if they meet those various criteria. That's correct.

Senator CHAFEE. So unless the law we are considering that Senator Lautenberg has proposed and that I am supporting, unless that is passed, there is no tool that you have to prevent dumping.

Mr. DAGGETT. Not if they meet the criteria that have been prescribed.

Senator CHAFEE. If they meet the criteria. And if they can't dump in the 106-mile site, they can dump in another one.

Mr. DAGGETT. If it were to be designated, that's true. At the moment, the only designated site for that sludge dumping is the 106 site.

Senator CHAFEE. Suppose you decided not to designate a site? Then they would go to court and probably force you to designate.

Mr. DAGGETT. Under the current law, that's probably true. They would make an attempt to do so. There's no question about it, unless for some reason that we can convince them or the public pressure or whatever can convince them that that's not the right

thing to do. And as you heard from Mr. Lipke, he said that he is prepared to get out of the ocean providing that they can get the proper permits for incineration.

So I think it is a matter of that process now under the existing law.

Senator CHAFEE. Mayor Koch didn't give us that impression. Mr. Lipke was more accommodating than Mayor Koch.

Mr. DAGGETT. That's true. But if I can just comment for one moment on Mayor Koch's testimony, I would have to say that if the issue is concern over pollution that is on the beaches, then I would have to concur with him that probably the major source of that is CSO's. If we are talking about what is going on in the ocean and some of the impacts, yes, we have to include the legal dumping and the questions about that. Certainly CSO's are a major source of the materials that wash ashore on the beaches of the various communities in New York and New Jersey.

Senator CHAFEE. Let me ask Mr. Lipke a question. Governor Kean and Commissioner Dewling seemed very confident about obtaining the necessary permits for incineration. I was interested in what they had to say because I come from a State where every time there is a suggestion of an incinerator, there is a whale of a battle. I mean, a political battle, that fortunately I am not involved in.

Don't you find that true? How are you going to locate these sites?

Mr. LIPKE. We are sort of in the middle. We are an operating agency. We don't establish policy. If the State tells us to build an incinerator, well, that's what we are going to do. And we have a site selected on our own property, and we will go through whatever necessary hearings and whatever. That would be our aim.

Senator CHAFEE. Dr. Magee, and I guess, Mr. Curtis, likewise, you all heard Mayor Koch's testimony and that of his commissioner that this is clean sludge and they've gotten the hazardous waste out of it, they've gotten the heavy metal, most of it, they said. So what harm? What's the problem?

Dr. MAGEE. Well, I've never seen an elemental or organic analysis of New York City sludge. However, I have seen data on typical generic sludge, and it is not uncommon to find 10, 12 different types of metals in various concentrations, also various organic materials, some which would be listed on the hazardous materials list.

I would have to say that I think it was more rhetoric than anything else to say, "Our sludge is not toxic." It depends in what concentration. It's like everything else. If you dilute it sufficiently, it may very well not be toxic. But we are talking about an accumulation of these materials, and as you know, the metals will accumulate for a long, long period of time. This is the difficulty of mediating the long range affects.

But I cannot support the statement that I heard that, "Our sludge is not toxic."

Senator CHAFEE. Obviously you conclude that there are safe incineration techniques?

Dr. MAGEE. Well, "safe" again is a very difficult term.

Senator CHAFEE. Safer.

Dr. MAGEE. I believe that incineration is an environmentally acceptable treatment technology. Metals can be a problem in municipal solid waste incineration, they can be a problem in hazardous waste incineration. However, most of the metals tend to be on the particles. We have seen that with very good particulate control technologies, and that's why you are seeing people changing, for example, to fabric filters over the traditional wet scrubbing to get better particulate removal, that you can cut down your metal emissions enormously.

Senator CHAFEE. Okay. Our problem here is, every time we deal with the disposal of any kind of a waste, whether it is solid waste or hazardous waste or sewage sludge, you are down into determining which is the least worst, because everything has an effect on something else. You incinerate it, you landfill it, you ocean dump it, whatever it is, some adverse effects result.

So therefore we have to choose what is the least worst. I have a gut feeling it is wrong to dump in oceans.

Dr. MAGEE. I don't think that you personally have to choose, but you are correct. This country faces a very serious waste disposal problem. For thousands of years we have dumped. We put men on the moon, our life expectancy has doubled in 200 years, but we are still treating wastes as we treated them thousands and thousands of years ago. I basically think that's insane.

Senator CHAFEE. All in one minute.

Dr. MAGEE. I am a professor, sorry. We have technological alternatives that have been evaluated for risk assessment. We probably know more about incineration than any other treatment technology. When you look at the environmental and health risks from incineration, I personally believe it is a technically viable management technology.

Senator CHAFEE. As you set forth.

Okay, Mr. Curtis, any comments? One minute.

Mr. CURTIS. Well, I concur with what Dr. Magee said about the nature of the toxicity of the sewage sludge, and that there are elements of toxicity in there that could be extremely damaging to the marine ecosystem.

To follow on to what was also said, we have a waste disposal problem, but more importantly we have a hazardous waste management problem. What we need to be concentrating attention on is the upper tiers of the hierarchy to get at source reduction, substitution, detoxification and treatment.

And the acid waste situation is a good example of that. There are avenues available to recycle that acid waste commercially.

Senator CHAFEE. You set them forth in your paper, which I thought was very interesting.

Mr. Chairman, thank you. I also want to thank Mr. Borden for the maps and charts he had in his testimony that showed where the fish were. It is all well and good to say there are no fish out there at 5,280 feet, mile depth, whatever it is. That just isn't so. There are fish all around. They may not be down there at the bottom, but they are on the upper levels, plus the eggs that you talk about, Dr. Magee.

Thank you all very much.

Senator LAUTENBERG. Thanks very much, everybody, for participating and your testimony. Each one of you on this panel has been excellent.

We will, again, submit questions that we would like answers to in writing. It is very helpful as we consider this legislation.

With that, this subcommittee hearing is adjourned.

[Whereupon, at 1:08 p.m., the joint subcommittee meeting was adjourned.]

[Statements and other material submitted for the record follow:]

Congressman
Jim Florio

New Jersey's First
Congressional District

— NEWS RELEASE —

STATEMENT OF CONGRESSMAN JAMES FLORIO
AT HEARING OF SENATE SUBCOMMITTEES ON SUPERFUND & ENVIRONMENTAL OVERSIGHT
AND
ENVIRONMENTAL PROTECTION

FEBRUARY 18, 1988

I am pleased to join you as we explore an area which will have a major impact on the future of our ocean and our shores.

Chairman Lautenberg, you and I share a common background in that we come from a state that directly feels the punishment inflicted on our oceans and our shores by the dumping of sewage sludge, hazardous waste and garbage in our waters.

This past summer, beaches in New Jersey were closed because of garbage, syringes, and hospital refuse washing up on our shores. Vacationers and shore residents suffered, as did our tourism industry. We can only estimate the damage that was caused to helpless marine life.

This was illegal dumping of waste in the ocean, and it was the source of considerable attention and indignation. And rightly so. But there is another, more dangerous side to all of this -- and that is the legal dumping of sewage sludge and acid waste in our oceans that takes place virtually every day.

The Environmental Protection Agency allows 7 million tons a year of sewage sludge and 8 million tons of dredge material to be dumped off the coasts of New York and New Jersey. Up to 200,000 tons of industrial acid waste are also dumped in the vicinity. In addition, we have pipeline discharge from municipalities and industrial facilities up and down the coast.

At the same time we are doing this to our oceans, we face a diminishing capacity for garbage disposal on land and non-existent federal standards for alternatives to landfilling, such as resource recovery plants.

If we continue to show this disrespect for our ocean and our land, we jeopardize our future -- and we risk failing in the eyes of generations to come who would be deprived of these resources.

Clearly, we face a range of environmental policies that boil down to this: The short-sighted policies of the past have created a crisis. We need to promote safe alternatives to practices, such as ocean dumping, that we know are unacceptable.

Last December, the House Subcommittee on Transportation, Tourism and Hazardous Materials held a field hearing at my request in Hoboken, New Jersey. We heard from a variety of specialists -- some of whom will testify hear today testifying -- that alternatives do exist. We aren't talking about Buck Rogers future technology. It's here now and it could be at work solving our problems

Instead, we have EPA telling us that the degradation of our oceans is necessary because alternatives are not economically feasible. What we heard

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in Hoboken riddled EPA's argument with holes. I think you will agree that Congress needs to create the incentive for these alternatives to be developed and widely used. To those who question the cost, I say: what is the cost of not doing it?

There is a role for Congress to play here. Congress has created economic and legal incentives for treatment in nearly every piece of environmental legislation enacted in this decade. We have to do so in part because an administration insensitive to the environment has continually tried to thwart the will of well-intentioned policy. Under the Resource Conservation and Recovery Act the "land-ban" mandates that wastes be treated prior to land disposal. Under Superfund, the long arm of joint and several liability creates a tremendous economic incentive for hazardous waste generators to detoxify their wastes before land disposal, as well as requiring permanent treatment remedies in all Superfund cleanup activities.

The key ingredient in each of these laws is a policy that strongly pushes toward treatment and discourages land and ocean disposal. Unfortunately, this Administration seems intent on undoing as many of these economic and legal incentives as possible. Time after time, EPA has looked environmental hazards squarely in the eye . . . . and blinked.

EPA's solution to hazardous waste regulation is to use legal sleight of hand to call hazardous waste "non-hazardous," rather than confronting the hazard with strong enforcement of existing standards.

Although all of these activities weaken the incentives for treatment alternatives, one EPA ruling is, in my view, particularly-appalling. Recently, EPA initiated a so-called "re-interpretation" of Congressional intent regarding ash from municipal incinerators.

By way of background, the committee should be aware that over the past year or so, studies have shown that ash from municipal incinerators contains dangerous levels of toxic metals, and even dioxins, according to a report by EPA's Inspector General. In fact, ash is so hazardous that several foreign countries have refused to accept ash from Philadelphia's incinerator. It has been on a boat, wandering the seas like last summer's infamous garbage barge.

Nevertheless, EPA's attorneys have concluded that what is too hazardous to be shipped to foreign countries can be thrown into any dump in the United States, whether or not the dump has groundwater monitoring, protective liners or whether the ash is treated.

EPA has reached this conclusion despite two years of consistently stating and acknowledging that Congress required that incinerator ash which flunks EPA's test for toxicity meets all of the legal requirements for any hazardous waste.

By legal fiat, EPA has made incinerator ash a non-problem and has effectively killed the economic and legal incentives for the development of long-term treatment solutions.

EPA's attempts to dismantle Congressionally-mandated incentives is having disastrous effects. A small Texas-based hazardous waste incinerator company recently went bankrupt in the face of repeated delays in EPA's enforcement of RCRA's land ban requirements.

The carefully constructed treatment incentives built into our environmental laws must be protected. I commend this Committee for pursuing aggressive oversight of EPA because I believe that without such oversight EPA will continue its efforts to dampen or kill the incentives for treatment.

We can't solve the hazardous waste problems of this nation by pretending they don't exist. Redefinitions and cute semantics are no substitute for sound policy. We need to wake up, or risk that those who come after us will look back in disgust at the late 20th Century as the time when we hammered the last nail into the coffin of our environment.

# # #

TESTIMONY OF EDWARD I. KOCH
MAYOR OF THE CITY OF NEW YORK
BEFORE THE
ENVIRONMENTAL PROTECTION SUBCOMMITTEE AND THE
SUPERFUND AND ENVIRONMENTAL OVERSIGHT SUBCOMMITTEE
OF THE SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

FEBRUARY 18, 1988

GOOD MORNING, CHAIRMAN MITCHELL, CHAIRMAN LAUTENBERG, AND SUBCOMMITTEE MEMBERS. I WANT TO THANK YOU FOR HOLDING THIS HEARING AND ALLOWING THE CITY OF NEW YORK TO SHARE ITS CONCERNS WITH YOU ABOUT LEGISLATIVE PROPOSALS SUCH AS S. 2030 THAT WOULD BAN THE OCEAN DISPOSAL OF SEWAGE SLUDGE AT THE EXISTING 106-MILE SITE.

S. 2030 WAS INTRODUCED WITH AN ELOQUENT STATEMENT BY SENATOR LAUTENBERG ABOUT THE IMPORTANCE OF PROTECTING OUR OCEAN AND COASTAL ENVIRONMENTS. I FULLY AGREE THAT WE NEED TO PROTECT THESE NATURAL RESOURCES, BUT I BELIEVE THERE ARE BETTER METHODS WE COULD USE TO DO SO.

MOST EMPHATICALLY, I WILL TELL YOU THAT CLOSING THE 106-MILE SITE WILL NOT IMPROVE THE CONDITION OF THE NEW JERSEY OR NEW YORK SHORELINE. TO UNDERSTAND WHY, ONE NEEDS TO DRAW A DISTINCTION BETWEEN RAW SEWAGE AND SEWAGE SLUDGE. - - RAW SEWAGE IS WHAT ENTERS WASTEWATER TREATMENT PLANTS. - - SEWAGE SLUDGE IS THE LIQUID WASTE WHICH IS THE BY-PRODUCT OF THE TREATMENT PROCESS, AND BEARS NO RESEMBLANCE TO ITS UNPROCESSED FORM. <u>THERE ARE NO FLOATING OBJECTS IN SEWAGE SLUDGE.</u>

THE SEWAGE SLUDGE BEING DISPOSED OF AT THE 106-MILE SITE CANNOT BE THE SOURCE OF THE GARBAGE THAT WASHED UP ON THE NEW JERSEY SHORE LAST SUMMER. THEREFORE, CLOSING THE 106-MILE SITE WILL HAVE NO AMELIORATING EFFECT WHATSOEVER ON NEW JERSEY'S AND NEW YORK'S COASTAL POLLUTION PROBLEM.

IN TERMS OF "FLOATABLES", NEW YORK CITY STRONGLY SUPPORTED THE PLASTIC POLLUTION REDUCTION BILL RECENTLY ENACTED INTO LAW WHICH TAKES IMPORTANT STEPS TOWARDS IMPROVING THE ENVIRONMENT. I WOULD LIKE TO TAKE THIS OPPORTUNITY TO THANK THIS COMMITTEE FOR ITS SUPPORT OF THE NEW YORK/NEW JERSEY BIGHT RESTORATION PROVISIONS INCLUDED IN THAT LEGISLATION. THOSE PROVISIONS, HOWEVER, DO HIGHLIGHT SOME DIFFICULTIES NEW YORK CITY HAS WITH THE LEGISLATION NOW BEING CONSIDERED.

THE PLASTIC POLLUTION REDUCTION ACT REQUIRED PREPARATION OF A "RESTORATION" PLAN BY EPA WITHIN 3 YEARS, INCLUDING A COMPREHENSIVE ASSESSMENT OF SLUDGE DISPOSAL ALTERNATIVES, WITH A PRELIMINARY REPORT DUE BY JANUARY, 1990. HOWEVER, S.2030 WOULD REQUIRE "EACH STATE IN WHICH A MUNICIPAL SEWAGE TREATMENT AUTHORITY PERMITTED TO DUMP SEWAGE AT THE 106-MILE SITE IS LOCATED" TO SUBMIT A REPORT TO EPA, INCLUDING CONSIDERATION AND ANALYSIS OF ALTERNATIVES, WITHIN A YEAR. WHAT IS THE POINT OF REQUIRING NEW YORK AND NEW JERSEY TO DO WHAT EPA IS ALREADY

REQUIRED TO DO? AND HOW CAN THESE STATES BE EXPECTED TO PREPARE WITHIN A YEAR THE KIND OF PRELIMINARY REPORT EPA HAS BEEN GIVEN TWO YEARS TO ACCOMPLISH? HOW CAN EPA BE REQUIRED TO EVALUATE THESE STATE REPORTS IN ADVANCE OF COMPLETING ITS OWN REPORT, WHICH PRESUMABLY WOULD CONTAIN THE INFORMATION NECESSARY TO MAKE A COMPETENT EVALUATION? S. 2030 WOULD ALSO PENALIZE USERS OF THE 106-MILE SITE FOR NOT MEETING THESE UNREASONABLE REPORTING REQUIREMENTS. WHAT IS THE SENSE OF PENALTIES SUCH AS WITHHOLDING FEDERAL WATER POLLUTION CONTROL ACT FUNDS FOR FAILURE TO MEET A REPORT SUBMISSION DEADLINE, WHEN SUCH AN ACT COULD ONLY RESULT IN FURTHER DELAYS IN WATER QUALITY IMPROVEMENT?

CLEARLY, THERE MAY BE A GREAT DEAL OF POPULAR SUPPORT FROM COASTAL COMMUNITIES FOR LEGISLATION WHICH PROMISES TO IMPROVE THAT COASTAL ENVIRONMENT. IT IS, THEREFORE, ESPECIALLY FRUSTRATING THAT PUBLIC AND POLITICAL SENTIMENT ARE BEING DRAWN TOWARD INITIATIVES THAT WILL FAIL TO CORRECT THE REAL CAUSES OF COASTAL POLLUTION.

THE TRUTH IS THAT CUPS, CANS, TAMPONS, PLASTIC AND OTHER TRASH WILL NOT STOP APPEARING ON NEW JERSEY'S BEACHES, OR ON NEW YORK'S BEACHES, UNTIL THE PROBLEM OF COMBINED SEWER OVERFLOWS (CSOs) IS ADDRESSED. THESE OVERFLOWS OCCUR DURING STORMS, WHEN RAINWATER AND STREET RUNOFF "COMBINE" IN A SINGLE PIPE WITH SEWAGE, EXCEEDING THE CAPACITY AT SEWAGE TREATMENT PLANTS. THAT EXCESS MERELY OVERFLOWS INTO RECEIVING WATERWAYS. THE PROBLEM IS NOT UNIQUE TO NEW YORK OR NEW JERSEY, - - MOST OF THE NATION'S OLDER URBAN AREAS HAVE COMBINED SEWER OVERFLOWS.

I KNOW THAT ADDRESSING THE PROBLEM OF CSOs DOES NOT HAVE THE APPEAL THAT THE BRAVADO OF ORDERING TREATED SEWAGE SLUDGE OUT OF THE OCEAN HAS. BUT FOCUSING OUR EFFORTS ON DEALING WITH COMBINED SEWER OVERFLOWS WILL MAKE A SUBSTANTIAL DIFFERENCE IN THE ENVIRONMENTAL HEALTH OF THE COAST.

SINCE WE KNOW WHAT WORK MUST BE DONE, NEW YORK CITY IS ALREADY ENGAGED IN DOING IT. WE HAVE BUDGETED $500 MILLION OVER THE NEXT TEN YEARS TO ABATE COMBINED SEWER OVERFLOWS AND, AS PART OF OUR COMPLIANCE WITH THE CLEAN WATER ACT, HAVE ALREADY EXPENDED MORE THAN $50 MILLION TO ELIMINATE COMBINED SEWER OVERFLOWS FROM SPECIFIC CONSTRUCTION PROJECTS IN BROOKLYN AND QUEENS, THEREBY CLEANING UP THE WATERWAYS. WE ARE ALSO EXPERIMENTING WITH A SWEDISH FLOW BALANCE METHOD OF CAPTURING OVERFLOWS IN BROOKLYN.

THE SOURCE OF NEW JERSEY'S BEACH POLLUTION LAST SUMMER IS STILL IN QUESTION. NEVERTHELESS, NEW YORK CITY ENTERED INTO A COURT SETTLEMENT IN DECEMBER FOR MONETARY PAYMENT TO THE TOWN OF WOODBRIDGE, NEW JERSEY OF $1 MILLION. IN ADDITION, WE ARE: INSTALLING ADDITIONAL SAFEGUARDS AT OUR MARINE TRANSFER STATIONS AND LANDFILL; UTILIZING SMALL SKIMMER BOATS TO REMOVE ANY LOOSE TRASH THAT MAY FALL OVERBOARD; APPOINTING INDEPENDENT MONITORS TO REVIEW OUR PROCEDURES AND RECOMMEND CHANGES; AND ALLOWING OUTSIDE OFFICIALS TO INSPECT OUR OPERATIONS.

THERE IS A GREAT DEAL OF WORK LEFT TO BE DONE. ALL LOCALITIES SHOULD BE URGED TO DO COMBINED SEWER OVERFLOW ABATEMENT, WHICH IS THE REAL SOURCE OF FLOATABLES AND POLLUTION THAT FOUL BEACHES. BANNING OCEAN DISPOSAL OF TREATED SEWAGE SLUDGE SIMPLY RESULTS IN DIVERTING THE CONSIDERABLE RESOURCES THAT COULD BEST BE USED TO DEAL WITH CSOs.

FOR EXAMPLE, FOR NEW YORK CITY IT WOULD TAKE AT LEAST 10 YEARS AND $218 MILLION IN CAPITAL COSTS TO CONSTRUCT A LAND-BASED COMPOST SYSTEM AND $60 MILLION IN ANNUAL OPERATING COSTS THEREAFTER. LAND APPLICATION IS ALSO AN EXTREMELY TROUBLESOME ALTERNATIVE IN NEW YORK CITY BECAUSE OF THE LIMITED LANDFILLING SPACE AVAILABLE. ENTERING INTO AN AGREEMENT TO APPLY SEWAGE SLUDGE ON LAND OUTSIDE THE CITY WOULD BE CONTINUOUSLY SUBJECT TO A LOCALITY'S DECISION TO NO LONGER ACCEPT IT AND, AS SUCH, WOULD BE A VERY TEMPORARY ARRANGEMENT.

AN INCINERATION SYSTEM WOULD TAKE AT LEAST 15 YEARS AND $477 MILLION IN CAPITAL COSTS TO CONSTRUCT, AND $49 MILLION IN OPERATING COSTS EACH YEAR FOR THE THREE INCINERATORS THAT WE HAVE EXTIMATED WOULD BE NEEDED, - - PROVIDED OF COURSE THAT WE COULD EVER GET ALL THE STATE AND FEDERAL APPROVALS NECESSARY TO BUILD THEM

UNDER THESE CIRCUMSTANCES, ELIMINATING ANY DISPOSAL OPTION AT THIS TIME WITHOUT CAREFUL STUDY WOULD NOT BE ENVIRONMENTALLY SOUND POLICY MAKING. ASKING LOCALITIES TO DEAL WITH THE MANY CONCERNS SIMULTANEOUSLY IS AN IMPOSSIBILITY, ESPECIALLY AS FEDERAL GRANTS FOR CLEAN WATER PROGRAMS ARE BEING PHASED OUT. NO MUNICIPALITY CAN DO EVERYTHING AT ONCE. CONGRESS MUST REALIZE THIS AND RESPONSIBLY SELECT PRIORITIES WHICH MAXIMIZE THE BENEFITS TO THE ENVIRONMENT.

THINK ABOUT THE FUTURE. WORK WITH US TO BALANCE THE ALTERNATIVES. DO NOT SET BACK THE VALIANT EFFORTS THAT ARE NOW UNDERWAY TO CLEAN OUR WATERWAYS BY MAKING ERRONEOUS AND EMOTIONAL DECISIONS ABOUT THE CAUSES OF POLLUTION. I ASK THAT YOU NOT ADOPT ANY LEGISLATION THAT WILL BACK US OUT OF ONE CORNER AND INTO ANOTHER.

THANK YOU.

85-329 O - 88 -- 3

THE CITY OF NEW YORK
OFFICE OF THE MAYOR
NEW YORK, N.Y. 10007

March 31, 1988

Hon. Frank R. Lautenberg
Chairman
Superfund and Environmental
Oversight Subcommittee
United States Senate
Washington, D.C. 20510-6175

Dear Senator ~~Lautenberg~~ Frank

As requested in your letter of March 10, 1988, I am submitting the following answers to your questions to complete the record from the February 18th hearing on the ocean disposal of sewage sludge.

Q. How much sludge did New York City ocean dump in 1972?

A. New York City disposed of a total of 3 million wet tons of sewage sludge in 1972.

Q. How much sludge will you dump once both the North River and Red Hook sewage treatment plants provide secondary treatment?

A. In 1987, New York City disposed of a total of 3.9 million wet tons of sewage sludge. In 1990, the first full year that both North River and Red Hook will be operating at full secondary treatment, the total is expected to be 9% above the 1987 figure. It is critical however to note that as the amount of treated sludge has increased slightly over this 15 year period, the rise directly correlates to improved water quality in the New York/New Jersey harbor area and shoreline.

Q. What policy does New York State's sludge plan set for ocean dumping of sewage sludge?

A. To the best of our knowledge, there is no New York State Sludge Management Plan. The New York State Department of Environmental Conservation Solid Waste Management Plan addresses sludge management as part of the array of solid waste disposal issues facing New York State. Although the intent is expressed to end ocean dumping, this is not seen as an urgent necessity. The Plan discusses phasing out ocean sludge disposal, where feasible, over a period of years, with alternatives carefully evaluated. In spite of a predisposition against both ocean disposal and landfilling of sewage sludge, the Plan does not recommend jumping to other alternatives without concluding the necessary research. The general focus of the Solid Waste Management Plan is on recycling and reuse, which is the basis for their position against ocean sludge disposal.

As I testified at the hearing, I hope we can work together to abate the real causes of pollution of our oceans. That goal, which we share, will not be served if our attention and resources are diverted by a precipitous ban on the ocean disposal option which is not the cause of the wash-ups on New Jersey's beaches and, which our studies show, is environmentally preferable to land-based alternatives.

All the best.

Sincerely,

Edward I. Koch
MAYOR

REMARKS OF GOVERNOR THOMAS H. KEAN

TESTIMONY ON OCEAN DUMPING
BEFORE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT
WASHINGTON, D.C.
THURSDAY, FEBRUARY 18, 1988

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE,

THANK YOU FOR AGREEING TO ALLOW ME TO TESTIFY.

GOVERNORS, LIKE SENATORS, FIND OUT WHAT IS GOING ON BY READING THE MAIL. SINCE THE DEAD DOLPHINS AND GARBAGE TIDES OF LAST SUMMER, MY MAIL PILE HAS BEEN FILLED WITH LETTERS FROM CONSTITUENTS WHO SAY THEY ARE FED UP -- THEY SAY WE CAN NO LONGER TREAT THE OCEAN LIKE A CESSPOOL OR GARBAGE CAN.

LAST MONTH I RECEIVED ONE SUCH LETTER FROM AN ELDERLY NEW JERSEY WOMAN. SHE CONCLUDED BY URGING ME TO VETO A TAX CUT THE STATE LEGISLATURE WAS CONSIDERING. SHE SAID SHE WOULD RATHER THE GOVERNMENT USE HER MONEY TO SAVE THE SHORE AND OCEAN FROM POLLUTION.

UNSELFISH SENTIMENTS LIKE THAT ARE NOT UNUSUAL. THE PEOPLE WE REPRESENT ARE WORRIED THAT THEY MAY BE THE LAST GENERATION TO FULLY ENJOY THE OCEAN. THEY EXPECT GOVERNMENT TO CHOOSE THE RIGHT COURSE OF ACTION SO THAT THIS TRAGEDY DOES NOT OCCUR.

I AM PROUD THAT NEW JERSEY IS RESPONDING AGGRESSIVELY TO THIS CHALLENGE.

AS WE MEET TODAY, THE NEW JERSEY LEGISLATURE IS CONSIDERING MY 14-POINT PLAN TO SAVE THE SHORE AND OCEAN. I HAVE PROPOSED WE SPEND $200 MILLION OVER THE NEXT FIVE YEARS TO DO EVERYTHING FROM PICK UP MORE LITTER ON THE BEACHES, TO ACCELERATE OUR INDUSTRIAL PRETREATMENT PROGRAM SO WE REDUCE THE NEED FOR OCEAN DUMPING.

AND EVEN BEFORE THE EVENTS OF LAST SUMMER I PROPOSED A NEW JERSEY COASTAL COMMISSION TO BETTER MANAGE THE OCEAN AND FIGHT FOR ITS INTERESTS HERE IN WASHINGTON.

I DON'T BELIEVE NEW JERSEY IS ALONE IN THIS KIND OF EFFORT. OTHER GOVERNORS AND LEGISLATURES ARE WILLING TO MAKE OCEAN PROTECTION A PRIORITY. BUT THE MESSAGE FROM TRENTON AND OTHER STATE CAPITALS IS VERY SIMPLE: WE NEED YOUR HELP.

THE PROBLEMS OF THE OCEAN DO NOT KNOW ANY BOUNDARIES. THEY DO NOT RESPECT THE POLITICAL THEORIES OF FEDERALISM. SIX OF THE 14-POINTS IN NEW JERSEY'S OCEAN PROTECTION PLAN, FOR EXAMPLE, REQUIRE LEADERSHIP FROM THE FEDERAL GOVERNMENT.

ONE OF THOSE ACTIONS HAS ALREADY BEEN TAKEN. LAST YEAR, YOU PASSED, AND THE PRESIDENT SIGNED, THE MARPOL TREATY. THOSE OF US IN STATE GOVERNMENT THANK YOU FOR IT.

THIS YEAR I HOPE YOU WILL ACT ON A MATTER EVEN MORE IMPORTANT TO OUR ENVIRONMENT. I HOPE THIS COMMITTEE WILL MAKE IT A PRIORITY TO END OCEAN DUMPING OF SEWAGE SLUDGE WITHIN FIVE YEARS.

I ADMIT, THIS IS NOT AN EASY ARGUMENT FOR THE GOVERNOR OF NEW JERSEY TO MAKE. AS YOU KNOW, MY STATE IS ONE OF ONLY TWO STATES THAT CONTINUES TO DUMP IN THE OCEAN. BUT HALF OF MY STATE, HALF THE STATE OF NEW YORK, AND 48 OTHER STATES DO NOT USE THE OCEAN. ONLY FROM NORTHERN NEW JERSEY AND NEW YORK CITY ARE BARGES SENT OUT OVER THE HORIZON EVERY MORNING TO DUMP THEIR CONTAMINATED LOAD IN MURKY WATERS.

SINCE THE OCEAN DUMPING ACT WAS PASSED IN 1973, THE AMOUNT OF SEWAGE SLUDGE DUMPED BY NEW JERSEY TOWNS AND CITIES HAS INCREASED FROM 442,000 POUNDS PER DAY TO ALMOST 930,000 POUNDS PER DAY. FIFTY-EIGHT PERCENT OF THE SEWAGE SLUDGE WE PRODUCE TODAY IS DUMPED IN THE OCEAN.

WHY HAS THIS INCREASE OCCURRED? BECAUSE WE HAVE DONE A GOOD JOB UPGRADING WASTEWATER TREATMENT FACILITIES. WE EXPECT A 50 PERCENT INCREASE IN THE VOLUME OF SEWAGE SLUDGE PRODUCED OVER THE NEXT FEW YEARS AS WE CONTINUE TO PROVIDE CLEANER WATER.

GIVEN MY STATE'S INCREASED DEPENDENCE ON SLUDGE DUMPING, IT WOULD BE CONVENIENT TO SIMPLY ARGUE THAT THE PRACTICE SHOULD CONTINUE.

BUT WE DON'T WANT TO DO WHAT IS EASY, WE WANT TO DO WHAT IS RIGHT. FOR BOTH THE ENVIRONMENT AND OUR LONG TERM ECONOMIC HEALTH.

WE CANNOT IN GOOD CONSCIENCE ARGUE THAT THE OCEAN IS A SAFE LONG-TERM DISPOSAL METHOD. THE TRUTH IS THE SCIENTIFIC EVIDENCE IS TOO UNCERTAIN. SO BY CHOOSING OCEAN DISPOSAL OVER LAND DISPOSAL, WE ARE GAMBLING ON THE UNKNOWN.

IF WE LOSE THAT GAMBLE, THE PRICE IS INCREDIBLY HIGH: A SEVEN BILLION DOLLAR TOURISM INDUSTRY IN NEW JERSEY ALONE; A REGIONAL FISHING INDUSTRY THAT EARNS MORE THAN $100 MILLION A YEAR.

AND EVEN THOSE NUMBERS DON'T BEGIN TO APPROXIMATE THE COST OF LOST JOBS, RUINED VACATIONS AND THE DEGRADATION OF A NATURAL RESOURCE THAT WE HAVE A MORAL RESPONSIBILITY TO BEQUEATH TO THE NEXT GENERATION.

WE ALSO CAN NO LONGER ARGUE THAT THE OCEAN IS THE ONLY VIABLE DISPOSAL OPTION FOR SEWAGE SLUDGE, WE HAVE MADE DRAMATIC ADVANCES IN PRETREATMENT TO REMOVE TOXIC METALS FROM SLUDGE; IN AIR CONTROL TECHNOLOGY TO ALLOW US TO BURN SLUDGE SAFELY; AND IN SOURCE REDUCTION TECHNOLOGIES TO CUT THE VOLUME OF CONTAMINANTS ENTERING THE WASTE STREAM.

THESE TECHNOLOGIES ARE SAFE AND PRACTICAL. OTHER STATES ARE USING THEM. THEY ARE WORKING.

SO AS PART OF OUR 14-POINT PLAN, WE DECIDED TO HALT OCEAN DUMPING AND TO DO IT QUICKLY. OUR DEPARTMENT OF ENVIRONMENTAL PROTECTION HAS INSTRUCTED OUR SIX SEWAGE AUTHORITIES TO DEVELOP PLANS FOR LAND-BASED DISPOSAL ALTERNATIVES AND TO LOCATE THE SITES WITHIN ONE YEAR.

IT ISN'T GOING TO BE CHEAP. WE ESTIMATE WE MAY HAVE TO SITE SIX NEW INCINERATORS AT A COST OF HUNDREDS OF MILLIONS OF DOLLARS. NEW JERSEYANS WILL SEE THESE COSTS IN THEIR SEWAGE BILLS.

BUT THIS IS A PRICE WE ARE WILLING TO PAY, AS ONE VERY IMPORTANT STEP TO PROTECT OUR PRECIOUS OCEAN FROM DESTRUCTION.

AS I SAID, WE CANNOT DO IT ALONE. NEW YORK AND NEW JERSEY ARE AS DEPENDENT UPON EACH OTHER AS A FIGURE SKATING PAIR IN THE OLYMPICS. IMAGINE IF ONLY ONE SKATER SPENT LONG HOURS TRAINING WHILE THE OTHER NEVER PRACTICED? THE RESULT WOULD BE FAILURE. THE SAME RESULT WILL OCCUR IF NEW YORK ENDS THE PRACTICE OF SEWAGE SLUDGE DUMPING, WHILE NEW YORK CONTINUES.

OR TO USE AN ANALOGY MORE FAMILIAR TO CHAIRMAN LAUTENBURG, IT WOULD BE LIKE ALLOWING CIGARETTE SMOKING IN THE FOURTH ROW OF AN AIRLINER BUT NOT IN THE FIFTH ROW. BOTH PASSENGERS WOULD FACE THE SAME HEALTH THREAT.

SOME HAVE SAID THE FIVE YEAR DEADLINE IS UNREALISTIC. I DISAGREE. NEW JERSEY EXPERIENCE HAS PROVED THAT THIS IS ENOUGH TIME TO PERMIT AND SITE THESE FACILITIES AND BEGIN CONSTRUCTION. AND IF NEW JERSEY CAN DO IT, WHY CAN'T NEW YORK?

THAT'S WHY WE SUPPORT SENATOR LAUTENBURG'S LEGISLATION TO CLOSE THE LOOPHOLE IN EXISTING LAW AND BAN OCEAN DUMPING ONCE AND FOR ALL. ONLY THE FEDERAL HAMMER WILL FORCE RECALCITRANT STATES TO ACT RESPONSIBLY.

I THANK YOU FOR LETTING ME SHARE MY THOUGHTS TODAY. BUT BEFORE I LEAVE I SHOULD NOTE THAT SLUDGE DUMPING IS NOT THE ONLY OCEAN ISSUE ON WHICH WE NEED FEDERAL ASSISTANCE.

(4)

WE NEED YOUR HELP IN MAKING SURE THAT THE DEADLINE IS MET FOR RELOCATING THE DREDGE LISPOSAL SITE. AND WE NEED YOUR SUPPORT TO KEEP EPA FROM DESIGNATING A PERMANENT WOOD BURNING SITE OFF NEW JERSEY'S COAST. FINALLY, WE IN NEW JERSEY SUPPORT SENATOR BILL BRADLEY'S EFFORTS TO CREATE A MANIFEST SYSTEM FOR MONITORING HOSPITAL WASTE, AND WE URGE YOU TO APPROPRIATE SUFFICIENT FUNDS FOR COAST GUARD ENFORCEMENT AGAINST ILLEGAL DUMPING.

BUT SLUDGE DUMPING HAS TO BE THE FIRST PRIORITY. WHEN THAT LAST SLUDGE LEAVES THE HARBOR, IT WILL SIGNIFY THAT THE YEARS OF NEGLECT AND CALLOUS DISREGARD FOR THE OCEAN ARE FINALLY BEHIND US. IT WILL SIGNAL THAT WE APPRECIATE THE OCEAN'S VALUE AND FRAGILE NATURE.

IT WILL SIGNAL, IN SHORT, THAT WE ARE UP TO THE RESPONSIBILITY OF PASSING ON A HEALTHIER PLANET TO THOSE WHO COME AFTER US.

NOW I WILL ANSWER ANY QUESTIONS.

GOVERNOR'S 14-POINT ACTION PLAN TO PRESERVE NEW JERSEY'S OCEAN AND BEACHES

In January, 1987 Governor Kean announced his proposal for a bold and dramatic solution to our coastal problems -- the New Jersey Coastal Commission. For the first time, the Commission will yield comprehensive coastal management. It will give us the necessary focus, regional management, State coordination, local input, clout and dollars to turn around recent trends.

There is an immediate need to reduce the litter and floatable trash on New Jersey's beaches and to produce improvements to the quality of New Jersey's near coastal waters. Outlined here is a fourteen-point action plan to be undertaken by municipalities, the State, and Congress.

The effectiveness of these fourteen measures will be significantly compromised without comprehensive coastal management. The New Jersey Coastal Commission is essential to provide a framework for the long-term protection of our beaches and water. The Commission will serve to ensure this protection by continuously lobbying Congress for the changes listed here and by working with municipalities and State agencies to implement their programs.

While quick action is essential, we cannot pretend that our problems will be solved without the long-term commitment to planning for regional land use, water quality improvement, shore protection, and financing embodied in the New Jersey Coastal Commission.

A) Municipal Actions

1) Control Beach Litter

Beach litter is composed not only of debris which washes ashore from illegal dumping and maritime traffic, including recreational boaters, but it also consists of debris left behind by beach goers. The contribution from the general population to beach litter can be substantial. A 1986 USEPA study, which looked at the relationship of beach litter and beach users, estimated that Los Angeles County beach goers leave behind approximately 75 tons of trash each week. Potential health effects are associated with beach litter as well as the obvious aesthetic impacts. The washing ashore of illegally disposed municipal and hospital wastes is an example of this problem. The control and cleanup of beach

litter is a costly operation that is largely borne by municipalities.

An estimated 26,000 cubic yards of litter is cleaned from New Jersey's 127 miles of ocean front annually. New Jersey's 40 shore communities spend approximately $2 million on beach cleanups per year. DEP provides an additional $1 million annually through the Clean Communities Act for this purpose, but funds can not be used for equipment. Under the Governor's 14-point action plan, municipalities will be issued grants for equipment needed to speed the removal of garbage on beaches. Litter from boaters and bathers can be controlled through the use of sand shovels, trash receptacles, and increased personnel.

COST: $2 MILLION

2) Sweep Streets and Clean Sewers

Litter which washes off streets during a rainfall, can flow through storm sewers and finally, enters our lakes, bays and ocean. The coastal area of New Jersey has approximately 5000 stormwater discharge pipes which can carry such garbage from streets to State waters.

In order to reduce stormwater transported litter, municipalities will be eligible for grants to assist them in carrying-out sanitary actions such as street sweeping, and maintaining and cleaning of storm drains.

COST: $2 MILLION

B) State Actions

3) Increase Funding for Marine Police

The events of this past summer have clearly demonstrated that the police presence in our coastal waters and in the ocean is inadequate to deter illegal or inadvertent waste disposal activities. The New Jersey Marine Police has jurisdiction along the coast and up to three miles seaward. However, they lack the resources and the priority directive to perform adequate surveillance and enforcement of permitted and illegal dumping.

Illegal dumping could take place on shore (e.g. a garbage truck dumping its load from the end of the pier), from a barge (so-called "short" dumping) or from a ship or boat. There are tens of thousands of vessels in our coastal waters, each having the capability to conduct illegal or inadvertent disposal of wastes. In addition there are over 1,000 miles of coastline in the New York Harbor area and along the New Jersey coast.

The enforcement capabilities of the Marine Police must be increased in order to control litter from boaters within New Jersey's territorial waters and to ensure compliance with ocean dumping regulations.

COST: $5 MILLION

4) Control Stormwater Pollution

Non-point sources of pollution represent a significant environmental problem in our shore areas and must be properly managed if clean water goals are to be achieved. Non-point source pollution is pollution that comes from many miscellaneous or diffuse sources rather than from a specific point such as an outfall pipe from an industrial or municipal wastewater treatment plant. Non-point source pollution includes that which comes from storm runoff directly entering waterways or that which enters waterways through storm sewer systems. It contributes greatly to the biological and chemical degradation of coastal waters. Eighty to ninety percent of all beach closings in our coastal areas are due to elevated levels of bacteria associated with non-point source inputs during storm events. Pollutants which end up in our coastal waters include petroleum hydrocarbons, certain heavy metals, greases, oils, pesticides, bacteria, excessive nutrients and sediments.

The Department of Environmental Protection estimates:

- 350,000 pounds of petroleum hydrocarbons,
- 2,300,000 pounds of nitrates,
- 202,000 pounds of phosphates, and
- 170,500,000 pounds of suspended solids

enter New Jersey's coastal waters annually.

As part of the Governor's action plan, a multistep program will be executed to stop the damage being done. First, funds will be available to locate, map and inventory stormwater outfalls discharging to back bays and the ocean. Second, cross-connected sanitary and storm sewers will be corrected. This will remove one of the more obvious sources of pollution from stormwater in our older communities -- raw sewage. Third, existing stormwater management regulations will be strictly enforced. This will remove most of the small particles of pollution, to which 70% of all contaminants are bound, from stormwater runoff and eventually our coastal water.

COST: $60 MILLION STATE/$20 MILLION LOCAL

5) Improve Operation and Maintenance of Sewage Treatment Plants

New Jersey's coastal sewage treatment plants discharge over 130 million gallons of effluent per day into the ocean. At

present, DEP monitors all primary treatment plants weekly. Secondary treatment plant performance is described through monthly reports filed with the Department of Environmental Protection. A recent study by the Congressional Office of Technology Assessment on wastes in the marine environment concluded that proper operation of sewage treatment facilities must be given the highest priority. The Governor's action plan provides funding for improved monitoring and enforcement within the New Jersey Pollutant Discharge Elimination System (NJPDES) in order to assure proper operation of coastal sewage treatment plants.

COST: $.3 MILLION/YEAR

6) Extend Monmouth County Sewage Outfalls

At present, nineteen wastewater treatment plants discharge effluent in New Jersey's coastal waters. Six of these facilities are either primary plants or inadequate secondary plants that will be eliminated when new regional facilities become available with extended outfalls. One additional primary facility is being upgraded to secondary treatment and will have an 1,800 foot outfall. Of the remaining twelve facilities, all but three have outfalls in excess of 4,000 feet. Concern has been raised over these four facilities (3 existing and 1 under construction) that continue to discharge in coastal waters less than 2,400 feet from the beach and the possibility of elevated levels of bacteria and viruses coming back to shore after passing through the wastewater treatment plant.

These four treatment plants represent 25.8 millions of gallons per day of flow. The Governor's action plan includes extending these outfalls to 5,000 feet. It would require construction of over 12,000 feet of pipe, with diameter varying between 18 and 48 inches and in depths of water between 25 feet and 50 feet. This will increase the dilution of wastewater and thereby reduce pollutants along our beaches.

COST: $30 MILLION STATE/$10 MILLION SEWERAGE AUTHORITIES

7) Fix Combined Sewer Overflows

Combined sewer overflows are also a major source of pollution. Constructed in older cities, these overflows were originally designed to relieve stresses on sewage plants during rainy periods. However, additional studies of the effects of combined sewer overflows have shown that an average of 113 million gallons per day, of essentially diluted raw sewage, flows into the Raritan-Hudson Estuary through 150 outfalls; by comparison, New York City discharges

185 million gallons per day. Screening and disinfection at overflow points is needed to reduce the transport of bulk pollutants.

COST: $75 MILLION STATE/$25 MILLION LOCAL

8) Accelerate Industrial Pretreatment Program

The Congressional Office of Technology Assessment has underscored the importance of minimizing toxics in coastal waters. Industrial plants are among the many sources of wastewater discharged into municipal sewers. Often it is contaminated by toxic substances which are by-products of industrial processes. Examples are cyanide from electroplating shops and lead from the manufacture of batteries. Since sewage collection and treatment systems have not been designed to treat them, industrial wastes can damage sewers, interfere with treatment plant operation, and essentially pass through systems untreated.

Pretreatment actions by local industry, monitored and enforced by State government, will reduce the level of toxics and thereby facilitate incineration of sewage sludge or other land-based disposal options.

C) Congressional Action

It is imperative that Congress take the following steps to end the abuse of New Jersey's coastal waters.

9) End Ocean Dumping of Sludge in Five Years

Sewage sludge is the solid portion of human waste. The solids settle to the bottom of tanks during the wastewater treatment process. New Jersey's sewage sludge is either ocean dumped, composted and land applied, incinerated, or taken to out-of-state landfills. As the State's sewerage agencies upgrade wastewater treatment plants, more sludge will be produced.

Six New Jersey sewerage agencies dispose of their sludges in the ocean under the management of the U.S. EPA. This follows a 1981 court decision which permitted the continuation of ocean disposal. New York City, Nassau County and Westchester County also utilize the ocean to dispose of sludge. The New Jersey sewerage agencies are the Bergen County Utilities Authority, Passaic Valley Sewerage Commissioners, Joint Meeting of Essex and Union, Linden/Roselle Sewerage Authority, Rahway Valley Sewerage Authority and the Middlesex County Utilities Authority. Collectively they generate 50% of the sludge produced in the State.

Over 150 New Jersey communities have terminated ocean disposal since 1976. The remaining dumpers are being

directed by EPA to phase-out of a near shore disposal area (12-mile Site) in favor of a much larger deep water site off of the Continental Shelf (106-mile Site). The transition will be completed by the end of the year.

The current ocean dumpers provide sewer service to the heavily industrialized northeastern portion of the State. A combination of industrial wastewater and household contaminants results in the sludges having a pollutant loading consisting primarily of heavy metals and petroleum hydrocarbons.

These New Jersey sewerage agencies produce approximately 2.8 million wet tons of sludge per year (this equates to 926,000 lbs/day). The sludge that is barged to the ocean is approximately 5% solids and 95% water. It is expected that the volume of sludge from the New Jersey ocean dumpers will increase by at least 25% in the next five years.

We must set a goal for New Jersey municipalities to end sludge dumping within five years.

While New Jersey aggressively pursues stepped-up pretreatment and sets a goal of ending sludge dumping in five years, Federal legislation is needed to ensure that no other jurisdictions continue this practice - in particular, New York City.

10) Immediately Close Six-mile Dredge Spoil Site

Dredged material is sand, silt, and mud which must be periodically removed from navigational channels and berthing areas throughout the Port of New York and New Jersey. The dredged material is likely to contain heavy metals, petroleum hydrocarbons, and PCB's at levels which, in some instances, could result in contamination of marine life. It is the general practice for dredged material from the harbor area to be disposed of at the so-called Mud Dump Site, approximately six miles east of Sea Bright, New Jersey. The Army Corps of Engineers is responsible for managing the site and acting on disposal permits under the Federal Ocean Dumping Act.

The Corps estimates that an average of seven million cubic yards of dredged material is being ocean dumped annually. Two large new projects (Navy's Earle and Stapleton facilities plus the Port Authority's Newark Bay/Kill Van Kull widening and deepening project) could result in 45 million cubic yards, above and beyond the annual maintenance dredging work.

The Corps has stated that the Mud Dump has a useful life of 6-8 years (70 million cubic yards) before the mound of material becomes a hazard to navigation. Meanwile, EPA has been mandated by Congress to stop dredge spoil dumping at the six-mile site within three years and to designate a new site within twenty miles.

This is not soon enough. EPA must accelerate this closure and develop methods for treating the most contaminated material which comprises 10% of all dredge spoils. Clean material should be utilized for beach replenishment.

11) Deny Approval of Commercial Woodburning Site

EPA regulates the incineration of wooden waste materials from the NY/NJ harbor area at a site approximately 20 miles east of Point Pleasant, New Jersey. The wooden debris comes from the Corps' harbor drift removal program (the removal of floating hazards to navigation) and the NY/NJ "Harbor Clean-Up Program" (removing potential sources of drift from blighted shoreline areas). The burn barges of private contractors have had a record of sloppy operations. Timbers have fallen overboard in transit to the site or during the burn. The result has been timbers washing into bathing beaches or floating timbers causing hazards to fishing boats and recreational craft.

The EPA has recently imposed strict conditions on the operation of the burn barges and DEP staff monitors all burn operations involving NJ originated material. Current or pending permits will allow up to 120,000 tons of material to be burned on an annual basis. This translates to approximately one burn every 4 weeks.

EPA is considering the establishment of a commercial woodburning site at sea. In order to limit this activity, EPA must not establish this permanent commercial woodburning site. Instead, woodburning should be allowed only on a permit-by-permit basis with the requirement that applicants must demonstrate the absence of suitable land alternatives.

12) Increase Coast Guard Funding

The New York Bight is the only United States body of water with ocean dumping of sludge by barge. As use of the 106-mile site increases, so does the possibility of short-dumping. A greater Coast Guard presence is needed to minimize this illegal dumping. Congress must appropriate additional funding to allow the Coast Guard to perform its duties properly.

13) Implement MARPOL

The problem of plastics and marine debris has been addressed internationally under the International Convention for the Prevention of Pollution from Ships (MARPOL). Annex V of MARPOL specifically addresses solid waste generated on board ships. When it comes into force internationally, it will prohibit the overboard disposal of plastics and strictly regulate other disposal practices to minimize ocean pollution and beach wash-up. The United States Senate recently

ratified Annex V of the Convention, making us a party to this treaty. The Annex will come into force within one year.

The number of passages of commercial vessels along the New Jersey coast each year and the exposure time for overboard discharge of garbage is roughly equivalent to a town of 3,250 people dumping the solid waste it generates into the ocean.

Even though the treaty has been ratified, the Governor's action plan calls upon Congress to enact legislation which allows the appropriate U.S. agencies to implement MARPOL.

14) Require Manifest System for Hospital Waste

A significant and particularly serious part of the problem with garbage floating to our shores has been that of hospital-type waste. There are no federal requirements for states or cities to track medical waste and ensure its proper disposal. In fact, EPA has publicly stated it does not consider this to be a federal responsibility.

Congress must require EPA to establish a system for the tracking of hospital and medical facility wastes so as to assure proper disposal.

STATEMENT OF

DR. RICHARD T. DEWLING, P.E., COMMISSIONER

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BEFORE THE

SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT

AND THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

OF THE

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

ON

OCEAN DISPOSAL OF SEWAGE SLUDGE

FEBRUARY 18, 1988

SENATOR LAUTENBERG, SENATOR MITCHELL, MEMBERS OF THE COMMITTEE, THANK YOU FOR PROVIDING ME WITH AN OPPORTUNITY TO SPEAK TO YOU THIS MORNING REGARDING NEW JERSEY'S DEEP CONCERN AND COMMITMENT TO PROTECTING AND ENHANCING THE QUALITY OF THE OCEANS -- OUR MOST CHERISHED NATURAL RESOURCE. IT'S SOMEWHAT IRONICAL THAT THIS RENEWED FOCUS IS COMING FOLLOWING A DECADE OF STEADY PROGRESS BY BOTH STATE AND FEDERAL GOVERNMENTS IN ABATING POLLUTION IN OUR NATION'S INLAND AND NEAR COASTAL WATERS. BY WAY OF EXAMPLE, NEW JERSEY HAS COMMITTED MORE THAN $1 BILLION OF FEDERAL/STATE AID TO ABATE AND UPGRADE THE LEVEL OF WASTEWATER TREATMENT PROVIDED BY OUR COASTAL COMMUNITIES.

OBVIOUSLY, LAST SUMMER'S CASCADING SERIES OF EVENTS -- TAR BALLS, FLOATING GARBAGE, DYING DOLPHINS, AND OIL SLICKS -- HAVE LEFT A LASTING IMPRESSION ON ALL OUR MINDS. SADLY, NEW JERSEY WAS NOT THE ONLY VICTIM OF THESE INSULTS. IN THE WATERS OFF LONG ISLAND, NEW YORK, MILLIONS OF SHELLFISH DIED LAST SUMMER DUE TO A LACK OF OXYGEN, CAUSED BY AN UNPRECEDENTED "BLOOM" OF ALGAE COMMONLY REFERRED TO AS "BROWN TIDE." AT CAPE COD, MASS., PARENTS WERE, TO SAY THE LEAST, DISTURBED WHEN THEY FOUND THEIR CHILDREN DECORATING SAND CASTLES WITH PLASTIC TAMPON APPLICATORS, WHICH SOME EXPERTS BELIEVE CAME FROM SLUDGE DUMPING PRACTICES IN NEARBY BOSTON HARBOR.

STATES BORDERING THE GULF OF MEXICO, PARTICULARLY AT PADRE ISLAND NATIONAL SEASHORE, ARE ALSO FEELING THE IMPACTS ASSOCIATED WITH THE WASH-UP OF GARBAGE AND FLOATING DEBRIS ON THEIR SHORES. THE SOURCE OF THIS LITTER APPEARS TO BE ASSOCIATED WITH OFFSHORE MARITIME OPERATIONS, NAMELY SHIPS AND DRILLING RIGS.

THESE INSIDIOUS PROBLEMS, WHICH SEEM TO REFLECT AN ATTITUDE OF "DILUTION IS THE SOLUTION TO POLLUTION," RESPECT NO BOUNDARIES. THE MEDITERRANEAN, THE BALTIC AND THE SEA OF JAPAN ARE ALSO FEELING THE IMPACTS OF OCEAN NEGLECT. EVEN THE LEGENDARY ISLE OF CAPRI HAS BEEN MARRED BY GARBAGE AND SEWAGE FROM NEARBY NAPLES.

SENATORS, THERE SEEMS TO BE NO LINKAGE BETWEEN OUR SOCIETY'S DEMAND FOR A LIFESTYLE THAT CREATES POLLUTION AS A BY-PRODUCT AND THE INDIVIDUAL'S RESPONSIBILITY TO ACCEPT THE CONSEQUENCES OF IMPROPER WASTES MANAGEMENT AND DISPOSAL. UNFORTUNATELY, WE FREQUENTLY FACE A PUBLIC ATTITUDE PROBLEM THAT ANY FORM OF WASTE DISPOSAL IS FINE AS LONG AS IT'S "NOT IN MY BACKYARD." BUT FOR COASTAL STATES, THE OCEAN IS OUR BACKYARD.

IN 1981 THE NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE (NACOA) ISSUED A SPECIAL REPORT ENTITLED "THE ROLE OF THE OCEAN IN A WASTE MANAGEMENT STRATEGY." THE REPORT SHOCKED MANY PEOPLE BY RECOMMENDING FOR THE FIRST TIME THAT THE OCEANS SHOULD BE CONSIDERED EQUALLY AS A DISPOSAL MEDIUM AS PART OF AN OVERALL WASTE MANAGEMENT STRATEGY.

U.S. DECISION-MAKERS, SCIENTISTS, AND THE GENERAL PUBLIC HAVE BEEN RIGHTFULLY SLOW TO ACCEPT THIS PREMISE. ACCORDING TO EPA, AND I QUOTE, "...THERE IS STILL SUBSTANTIAL SCIENTIFIC UNCERTAINTY AS TO THE POTENTIAL IMPACT OF DIFFERENT WASTES ON THE OCEAN ENVIRONMENT AND ITS IMPORTANT AND COMPLEX PHYSICAL, CHEMICAL, AND BIOLOGICAL SYSTEMS. WHILE SIMILAR PROBLEMS EXIST ON LAND, BECAUSE OF THE OCEAN'S SIZE AND NATURE WE ARE EVEN MORE LIMITED, BOTH ECONOMICALLY AND TECHNICALLY, IN OUR ABILITY TO DETECT AND MONITOR FOR LONG-TERM, SUBTLE IMPACTS IN THE OCEANS."

ANOTHER IMPEDIMENT TO ACCEPTING THE OCEAN AS A WASTE DISPOSAL MEDIUM, AS EXPRESSED IN THE BOOK "THE OCEAN DUMPING QUANDARY," BY DR. DONALD F. SQUIRES, IS THE GREAT DIFFICULTY INHERENT IN MEASURING, IN NATURAL ECOSYSTEMS, SUB-LETHAL EFFECTS ASSOCIATED WITH TOXIC MATERIALS, SUCH AS HEAVY METALS AND SYNTHETIC ORGANIC COMPOUNDS.

IN 1924, WHEN THE 12-MILE DUMP SITE WAS DESIGNATED OFF OUR SHORE, I FEEL CONFIDENT THAT SCIENCE TOOK A BACK SEAT TO THAT DECISION, AS THAT SITE WAS LOCATED EQUI-DISTANT FROM BOTH THE NEW YORK AND NEW JERSEY SHORELINES. HOW CONVENIENT! NOW, MORE THAN A HALF-CENTURY LATER, WE'RE ASKING OURSELVES WHETHER OR NOT WHAT HAPPENED TO THE NEW YORK BIGHT WAS JUST ANOTHER CASE OF MISUSE, ABUSE, LACK OF CONCERN, OR ANOTHER FAILING OF "NEW YORKERS" -- THE TERM WE AFFECTIONATELY USE TO DESCRIBE THE 17 MILLION PEOPLE IN BOTH STATES THAT DEPEND ON THE BIGHT FOR RECREATION AND BUSINESS?

IN MY OPINION, WHAT HAPPENED IN THE NEW YORK BIGHT IS THE STORY OF THE INTERACTION OF OUR PROGRESSIVE SOCIETY AND THE OCEAN -- A

STORY RICH IN OPPORTUNITY SEIZED, IN GREAT DEVELOPMENT, AND IN THE COST OF THESE ACTIONS. WHAT HAPPENED HERE HAS HAPPENED ELSEWHERE, AND WILL HAPPEN AGAIN WHEREVER PEOPLE FAIL TO RECKON WITH THE FINITENESS OF THE OCEAN ECOSYSTEM. IN A SHORTHANDED WAY, I'M DESCRIBING A SET OF INTERACTIVE, EVOLVING AND BALANCED PHYSICAL, CHEMICAL AND BIOLOGICAL RELATIONSHIPS. IF YOU POKE AN ECOSYSTEM IN ONE PLACE, IT MAY WELL REACT SOMEPLACE ELSE. ECOSYSTEMS ARE DYNAMIC, THEY MOVE AND GROW AND CHANGE AND DIE.

IN SUMMARY, WHEN IT COMES TO THOROUGHLY UNDERSTANDING THE IMPACTS OF OCEAN DISPOSAL PRACTICES, THE SCIENTIFIC "UNKNOWNS" ARE GREATER THAN THE "KNOWNS." THEREFORE, GOOD PUBLIC POLICY DICTATES THAT WE TAKE THE PROTECTIVE AND CONSERVATIVE APPROACH OF ENDING THE PRACTICE OF OCEAN DUMPING OF SEWAGE SLUDGE. BY SHIFTING DISPOSAL TO LAND-BASED OPTIONS, REGULATORY AGENCIES CAN MORE CLOSELY MONITOR, CONTROL AND, IF NECESSARY, TAKE CORRECTIVE ACTIONS TO REDUCE ENVIRONMENTAL IMPACTS. THE OCEANS CAN NOT SURVIVE CONTINUED NEGLECT AND ABUSE. WE MUST "TURN THE TIDE" IN FAVOR OF PROTECTING AND PRESERVING THIS RESOURCE.

IT SHOULDN'T TAKE MUCH COURAGE TO MAKE THIS SHIFT, SINCE WE IN NEW YORK AND NEW JERSEY ARE THE ONLY TWO STATES IN THE NATION STILL DUMPING SLUDGE IN THE OCEAN. I SUBMIT THAT WE ARE NOT TECHNOLOGICALLY LIMITED TO UNDERTAKE THIS ACTION IF THE "OTHER-48" ARE HANDLING THEIR SLUDGE "ON LAND." NOTICE, ALSO, THAT I WAS CAREFUL TO SAY DUMPING, AS I RECOGNIZE THAT A FEW COASTAL STATES ARE STILL DISCHARGING SLUDGE INTO NEARBY COASTAL WATERS THROUGH OUTFALL PIPES. IT'S MY UNDERSTANDING THAT THIS DISPOSAL APPROACH

IS SHORT-LIVED, AND TECHNICAL ALTERNATIVES ARE NOW BEING IMPLEMENTED, PARTICULARLY IN LOS ANGELES.

TO FOLLOW THROUGH ON NEW JERSEY'S COMMITMENT TO PROTECT AND ENHANCE THE QUALITY OF WATER ALONG OUR 127-MILE SHORELINE, LAST NOVEMBER 17TH, GOVERNOR KEAN PROPOSED A $200 MILLION, 14-POINT ACTION INITIATIVE. THIS NEW PROGRAM FOCUSES ON MANY INTER-RELATED WATER QUALITY ISSUES, INCLUDING LITTER, STORM AND COMBINED SEWER OVERFLOWS, LENGTHENING OF OCEAN OUTFALLS, STRONGER ENFORCEMENT BY THE NEW JERSEY MARINE POLICE AND THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, RELOCATING THE DREDGE SPOIL DISPOSAL SITE, AND THE SUBJECT OF THIS HEARING, PHASING OUT THE PRACTICE OF DUMPING SLUDGE IN THE OCEAN.

SENATORS, WITH YOUR PERMISSION, I WOULD LIKE TO SUBMIT FOR THE RECORD A DETAILED DESCRIPTION OF THE GOVERNOR'S COMPREHENSIVE 14-POINT INITIATIVE FOR IMPROVING MARINE WATER QUALITY ALONG NEW JERSEY'S COAST. I WILL CONTINUE TO FOCUS MY COMMENTS THIS MORNING ONLY ON THE ISSUE OF SLUDGE DUMPING.

PRIOR TO THE ENACTMENT OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT IN 1972, LITTLE WAS KNOWN ABOUT THE VOLUME AND CHARACTERISTICS OF SEWAGE SLUDGE DUMPED INTO THE OCEAN. IN 1973, NEW JERSEY WAS DUMPING APPROXIMATELY 442,000 POUNDS PER DAY. WHILE THE NUMBER OF MUNICIPALITIES OCEAN DUMPING HAS DECREASED FROM APPROXIMATELY 150 IN 1972 TO SIX TODAY, THE VOLUME OF SLUDGE DUMPED HAS INCREASED TO 929,056 POUNDS PER DAY IN 1987. THIS

INCREASE HAS RESULTED FROM A UPGRADING IN THE LEVEL OF TREATMENT PROVIDED BY NEW JERSEY MUNICIPALITIES. IT IS IMPORTANT TO NOTE THAT WE ANTICIPATE A 50 PERCENT INCREASE IN THE FUTURE VOLUME OF SLUDGE PRODUCED AS THE SIX CURRENT WASTEWATER FACILITIES FURTHER UPGRADE THEIR LEVEL OF TREATMENT. ALSO, FOR THE RECORD, YOU SHOULD KNOW THAT 15% OF ALL NEW JERSEY'S MUNICIPAL SLUDGE IS PRESENTLY LAND APPLIED AS FERTILIZER, 17% IS INCINERATED, 15% IS TAKEN OUT-OF-STATE, AND 53% IS OCEAN DUMPED AT THE 106-MILE OCEAN DISPOSAL SITE.

TO FOLLOW THROUGH ON THE GOVERNOR'S COMMITMENT TO CEASE OCEAN DUMPING OF SEWAGE SLUDGE, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION HAS TAKEN STEPS TO ENSURE THAT THE SIX NEW JERSEY SEWAGE AUTHORITIES DEVELOP LAND-BASED ALTERNATIVES WITHIN 4 YEARS. PUBLIC HEARINGS ARE ALREADY SCHEDULED FOR NEXT MONTH TO DISCUSS PERMIT MODIFICATIONS, WHICH WILL REQUIRE THE SIX AGENCIES TO IDENTIFY, WITHIN 12 MONTHS, THE ALTERNATE TECHNOLOGY AND SELECT THE SITE TO IMPLEMENT THIS PREFERRED TECHNOLOGY.

IN NEW JERSEY WE REALIZE THE COST AND CONCERNS THAT THIS ACTION BRINGS BY SHIFTING THE SLUDGE FROM THE OCEAN TO THE LAND. EVEN AFTER WE STRICTLY ENFORCE OUR PRETREATMENT REQUIREMENTS TO IMPROVE SLUDGE QUALITY, IT IS STILL POSSIBLE THAT WE MAY HAVE TO SITE UP TO SIX NEW STATE-OF-THE-ART INCINERATORS WITH ADVANCED AIR QUALITY CONTROLS. THE CAPITAL EXPENDITURES FOR THESE FACILITIES WILL LIKELY RANGE IN THE HUNDREDS OF MILLIONS OF DOLLARS, AND IT MAY COST INDIVIDUAL HOMEOWNERS SERVED BY THESE FACILITIES 30-40 CENTS

MORE PER DAY FOR THIS NEW TECHNOLOGY. I'M CONFIDENT, HOWEVER, THAT NEW JERSEY RESIDENTS WILL BE WILLING TO PAY THIS PRICE TO PROTECT THEIR COASTAL WATERS AND OCEAN.

SENATORS, NEW JERSEY'S UNILATERAL ACTIONS WILL NOT GUARANTEE THAT NEIGHBORING JURISDICTIONS WILL FOLLOW SUIT AND PHASE OUT OCEAN DISPOSAL. CONGRESS MUST ACT TO PLUG THE LOOPHOLE THAT CURRENTLY EXISTS IN THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT. AS YOU WILL RECALL, CONGRESS AMENDED THE ACT IN 1977 TO BAN BY 1981 ALL OCEAN DISPOSAL OF SEWAGE SLUDGE WHICH WOULD "UNREASONABLY DEGRADE OR ENDANGER HUMAN HEALTH, WELFARE, OR AMENITIES, OR THE MARINE ENVIRONMENT, ECOLOGICAL SYSTEMS, OR ECONOMIC POTENTIALITIES." WHEN EPA ATTEMPTED TO ENFORCE THE DECEMBER 31, 1981 DEADLINE, THE NINE NEW YORK AND NEW JERSEY SEWAGE AGENCIES KNEW THAT THERE WAS INSUFFICIENT TIME TO PHASE OUT OF THE OCEAN. NEW YORK CITY AND SEVERAL NEW JERSEY SEWERAGE AUTHORITIES BROUGHT A LAWSUIT AGAINST THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

NEW YORK CITY ARGUED IN COURT THAT IT SHOULD BE PERMITTED BY EPA TO CONTINUE OCEAN DISPOSAL OF SEWAGE SLUDGE AT THE NEAR SHORE 12-MILE SITE. THE CITY RAISED ISSUES OF COST AND ADVERSE ENVIRONMENTAL IMPACTS OF THE LAND-BASED ALTERNATIVES. HOWEVER, THE MAJOR CONTENTION IN THE CITY'S LAWSUIT WAS THAT EPA HAD MISINTERPRETED THE 1977 AMENDMENTS TO THE ACT. NEW YORK CITY CHARGED THAT THE 1981 DEADLINE WAS NOT APPLICABLE TO SLUDGE THAT

WOULD NOT "UNREASONABLY DEGRADE THE ENVIRONMENT," AND THEREFORE THE LAW DID NOT PUT AN ABSOLUTE END TO ALL SLUDGE DUMPING.

THE COURT FOUND IN FAVOR OF THE CITY BY RULING THAT EPA'S "CONCLUSIVE PRESUMPTION THAT MATERIALS THAT FAIL TO SATISFY THE ENVIRONMENTAL IMPACT CRITERIA WILL UNREASONABLY DEGRADE THE ENVIRONMENT IS ARBITRARY AND CAPRICIOUS." THE COURT DIRECTED EPA TO EVALUATE A PERMIT APPLICATION SO AS TO BALANCE THE ENVIRONMENTAL CRITERIA INCLUDING THE NEED FOR OCEAN DISPOSAL AND THE COST OF ALTERNATIVES. THE COURT ORDERED EPA TO REVISE ITS OCEAN DUMPING REGULATIONS, ALLOW CONTINUED OCEAN DUMPING CONSISTENT WITH THE CITY'S INTERIM PERMIT, CONSIDER THE CITY'S PETITION FOR CONTINUED USE OF THE 12-MILE SITE, AND EVALUATE AN APPLICATION BY NEW YORK CITY FOR A "SPECIAL" OCEAN DUMPING PERMIT.

THE STATE OF NEW JERSEY STRONGLY BELIEVES THAT WHAT NEEDS TO BE DONE IN 1988 IS TO CLOSE THE LOOPHOLE OF THE 1982 COURT DECISION. I URGE YOU TO ENACT LEGISLATION THAT WILL SET A FIXED DATE FOR THE TERMINATION OF ALL OCEAN DISPOSAL OF SEWAGE SLUDGE. SENATE BILL 2030, RECENTLY INTRODUCED BY SENATOR LAUTENBERG, IS THE APPROPRIATE WAY TO CLOSE THIS "LOOPHOLE".

IN ADDITION, I SUGGEST THAT YOU MAY WANT TO CONSIDER EXPANDING THE PROPOSED LEGISLATION TO INCLUDE AN ESCALATING "TIPPING FEE" SYSTEM

SO THAT THOSE COMMUNITIES PRESENTLY PRACTICING OCEAN DUMPING WILL CONFRONT THE PROBLEM OF FINDING ALTERNATIVES "HEAD-ON" AND MEET OR BEAT THE 1991 DEADLINE.

LET ME NOT MISLEAD YOU, A FOUR YEAR SCHEDULE TO END OCEAN DUMPING IS TIGHT, AND IT WILL REQUIRE A "FULL-COURT-PRESS" BY EVERYONE -- LOCAL, STATE AND FEDERAL REGULATORY AGENCIES, AND THE AFFECTED MUNICIPALITIES -- BUT IT CAN BE DONE! THE FEE SYSTEM, WHICH WE WOULD BE HAPPY TO WORK WITH YOU ON DEVELOPING, SHOULD BE EXPENSIVE ENOUGH SO THAT MUNICIPALITIES WILL MOVE AHEAD AGGRESSIVELY TO END OCEAN DUMPING. THE DOLLARS COLLECTED SHOULD NOT BE USED FOR RESEARCH OR MONITORING, BUT RATHER TO OFFSET THE COST OF CONSTRUCTING THE LAND BASED FACILITIES.

ASIDE FROM THE SEWAGE SLUDGE ISSUE, I REQUEST YOUR HELP IN ASSURING THAT THE DEADLINE FOR RELOCATING THE NEAR-SHORE DREDGE MATERIAL DISPOSAL SITE IS MET. IT IS MY UNDERSTANDING THAT EPA HAS YET TO BEGIN THE STUDIES NECESSARY TO MAKE THIS DECISION. IN ADDITION WE NEED YOUR SUPPORT TO URGE EPA NOT TO DESIGNATE A PERMANENT WOOD BURNING SITE OFF NEW JERSEY'S COAST. SUCH A PERMANENT DESIGNATION WOULD OPEN WOOD BURNING OPPORTUNITIES TO APPLICANTS FROM UP AND DOWN THE EAST COAST.

BEFORE I CLOSE, LET ME TAKE THIS OPPORTUNITY TO THANK MEMBERS OF THE COMMITTEE FOR PASSING SENATE BILL 633 IN DECEMBER OF LAST YEAR, AND TO ENCOURAGE YOU TO CONTINUE FORWARD WITH THE SAME LEVEL

OF DEDICATION ON THE UNFINISHED LEGISLATIVE AGENDA INVOLVING OCEAN POLLUTION. OBVIOUSLY, WE WERE PLEASED TO LEARN OF THE LEGISLATIVE PACKAGE WHICH INCLUDED MARPOL IMPLEMENTING LANGUAGE, AN EPA STUDY ON METHODS TO REDUCE PLASTIC POLLUTION IN THE OCEAN, AND THE NEW YORK BIGHT RESTORATION PLAN.

SENATORS, THE STATE OF NEW JERSEY AND OUR NEIGHBORING COASTAL STATES CANNOT SURVIVE ANOTHER SUMMER OF 1987. IN AN ECONOMIC SENSE, OUR TOURISM INDUSTRY HAS SUFFERED BOTH IN TERMS OF REAL LOSSES AND ALSO IN FUTURE LOSSES BASED ON A LACK OF CONFIDENCE THAT A "JERSEY SHORE" VACATION MAY NOT BE AS PERFECT AS WE ALL HAVE COME TO EXPECT. BUT MORE IMPORTANTLY, THE PEOPLE OF NEW JERSEY WILL NOT STAND IDLY BY AND ALLOW OUR OCEAN ENVIRONMENT TO BE DEGRADED BY "PERMITTED", OR EVEN UNINTENTIONAL ACTS OF POLLUTION.

THANK YOU.

STATE OF NEW JERSEY
OFFICE OF THE GOVERNOR
CN-001
TRENTON
08625

THOMAS H. KEAN
GOVERNOR

April 25, 1988

The Honorable Frank R. Lautenberg
United States Senator
Washington, D.C. 20510-0175

Dear Senator Lautenberg:

Thank you for your letter about the questions raised as a result of the February 18, 1988 hearing on ocean dumping. --I apologize for the delay in my response.

I referred your letter to the Department of Environmental Protection (DEP), and their complete response is enclosed for your review. I trust that this information adequately addresses your concerns. Should you require any further information, you should contact George G. McCann, Director of the DEP's Division of Water Resources, at (609) 292-1637.

Best wishes.

Sincerely

Tom Kean

Thomas H. Kean
Governor

Enclosures
cc: Commissioner Richard T. Dewling

Ocean Dumping of Sewage Sludge

1. Senator Roth recently introduced S. 2066, a companion bill to H.R. 3938 introduced by Congresswoman Schneider. At the February 23 hearing before House Merchant Marine and Fisheries Committee, you indicated your support for Congresswomen Schneider's bill.

   A. Do you support enactment of this bill?

   B. The bill fails to provide a role for the states of New York and New Jersey in ending ocean dumping of sewage sludge. Do you think this is appropriate?

Answer:

   A. The Department of Environmental Protection (DEP) strongly supports the concept embodied in H.R. 3938 - to end ocean sewage sludge disposal by a fixed deadline regardless of whether this disposal unreasonably degrades or endangers human health or the marine environment. We do, however, feel that the legislation should be modified to set a date certain to cease ocean sludge disposal more in line with the termination date of the 106 mile site designation. The five year extensions provided in H.R. 3938 may be excessive for some ocean dumpers while being too restrictive for others. With a fixed deadline, the Administrator of the U.S. Environmental Protection Agency (EPA) could evaluate the progress being made by ocean dumpers towards meeting the deadline, enter into binding enforceable agreements with timetables for the phasing out of ocean disposal and thus achieve the fastest cessation of ocean dumping. The legislation should provide for the EPA to enter into enforceable agreements with the ocean dumpers as early as possible.

   B. The states of New York and New Jersey will have to play a role in ending ocean dumping, but this role will be the permitting of land-based alternatives. The DEP does not feel that this needs to be embodied in the legislation.

2. You stated that most of the New Jersey sewerage authorities already have sites available for incinerators and that this was part of your reasoning for saying that alternatives to ocean dumping could be implemented by 1991.

A. Do the New York dumpers have incinerator sites already available like the New Jersey authorities?

B. Can the New York dumpers implement alternatives by 1991 if these sites are not already available?

Answer:

A. Nassau County, New York already has a dewatering and composting facility built to handle their sludge, however, it has never been utilized because of public opposition. With regard to New York City, they abandoned earlier plans to move towards composting when the courts ruled in their favor to continue ocean dumping. It is doubtful that they have future plans for incineration. They originally proposed and were funded by EPA to build dewatering facilities on barges next to existing plants. We have no information on Westchester County.

B. New Jersey is not in a position to judge whether New York City or Westchester County could implement an alternative by 1991. However, we believe Nassau County, New York could meet the 1991 deadline.

3. At the hearing, Sheldon Lipke from the Passaic Valley Sewerage Commissioners testified that Passaic Valley would need until the year 2001 to implement the incinerator alternative to ocean dumping. He provided a schedule to support this date.

A. Please analyze the proposed schedule and advise me how it can be shortened to meet the 1991 deadline.

B. Passaic Valley asserts that additional pretreatment will be required before a permit will be issued. Do you agree? If so, how long will it take to promulgate these requirements and for local industry to install the necessary equipment? What effect will this have on achieving the 1991 deadline?

Answer:

A. Mr. Lipke's schedule could be shortened by doing phases in parallel, rather then sequential:

Phase III - could begin immediately.

- one year to prepare permits is appropriate
- DEP approval of permits would be about one year, if additional pretreatment is not required or other air quality problems requiring substantial emission reductions are not uncovered by air quality modeling and risk assessment.

Phase V - If pretreatment is required, Mr. Lipke's pretreatment schedule is appropriate.

Phase VII - The five years of design and construction would probably be shortened somewhat, probably to less than four years, but allowing the time estimated by Mr. Lipke is prudent to address the inevitable problems that arise during the design and construction of major projects.

Summary - In short, beginning Phase II by January 1989, and assuming that pretreatment will not be necessary, will reduce Mr. Lipke's schedule by about six years, which would result in sludge incineration by about 1995.

B. Additional pretreatment may or may not be required before a permit is issued for incineration. Whether pretreatment is required depends on how effective the best available air pollution control technology is; and installation of a stack which will prevent "downwash" (the rapid descent of emissions to ground level). If these two factors reduce projected ground level concentrations of air contaminants enough to protect public health without further pretreatment, then pretreatment will not effect the schedule. However, if pretreatment is determined to be necessary (after modeling the best control and good engineering practice stack height), then it is prudent to verify the success of pretreatment before constructing such incinerators. This would add perhaps five years to the schedule.

4. Mr. Lipke also testified that the New Jersey Department of Environmental Protection (DEP) never responded to the applications of the six New Jersey ocean sludge dumpers to their requests for air pollution permits in 1981.

A. Is this true and if so, why has DEP never responded?

B. What can you do to assure me that the DEP will respond to permit applications this time so that the 1991 deadline can be met?

C. Once DEP has received a permit application, how long will it take to make a decision to issue the permit?

Answer:

A. In 1980, DEP did respond to applications for air pollution control permits for five ocean dumpers as follows:

1. Passaic Valley Sewer Commission - permit denied

2. Bergen County Utility Authority - permit denied

3. Linden Roselle Sewage Authority - permit denied (joint project)

4. Joint Meeting - permits conditionally approved

5. Middlesex County Utility Authority - no permit application submitted

P.V.S.C. did submit a second permit in 1981. Review of that permit was put on hold when it appeared that ocean dumping would continue at the 106 mile site and because unresolved air quality issues remained concerning the prevention of significant deterioration permit for existing equipment. This was a resource allocation decision rather than an indication the permit was unapprovable. The application was a good faith effort by P.V.S.C., but substantial additional effort by P.V.S.C., the DEP, and EPA would be required to determine the acceptability of the P.V.S.C. application.

B. The DEP intends to reopen the review of the P.V.S.C. incinerator application at the conclusion of the planning phase, when a final site selection is made. This effort will require approximately two DEP work years to review and reach resolution on the P.V.S.C. permits. To assist the six authorities in their efforts to end ocean dumping the DEP has formed a task force with representatives from our agency, the EPA and all six authorities. This task force will assist them in complying with the regulatory requirements for planning and permitting and will

lessen the review time required.

C. Approximately one year is required from receipt of a complete application to final approval. This assumes six months for a proposed approval, two months for public notice and comment, and four months for response to comment, modification of permit conditions, and issuance of the final permit. The review period would be preceded by approximately one year of effort by each authority to prepare the permit package, including air quality modeling, cancer risk assessment, best available control technology evaluation, etc.

5. In October 1987, the New Jersey DEP published its Sludge Management Plan.

A. Does the plan address disposing of sludge now dumped in the ocean?

B. If not, when will you amend your Sludge Management Plan?

C. What is the State willing to do to assist New Jersey sludge dumpers develop alternatives?

Answer:

A. The Statewide Sludge Management Plan (SSMP) was adopted on November 4, 1987. It is a component of the State Solid Waste Management Plan and was developed pursuant to the State Solid Waste Management Act (N.J.S.A. 13:1E-6) which requires the DEP to develop a plan which encourages "the maximum practicable resource recovery procedures and which shall provide objectives, criteria, and standards for the evaluation of solid waste management plans prepared (by the Districts)." Districts and sludge generators, not the DEP, are responsible for development of sludge management plans. The DEP must approve those plans pursuant criteria in the SSMP. (See Executive Summary attached).

Ocean disposal is addressed directly and indirectly in Part 4 and 6 of the SSMP. Part 6 excludes ocean dumping from the list of grandfathered sludge management activities (Table 6-1). Management at a site with a limited life (until March 17, 1991) does not satisfy the SSMP requirement for long term planning. Par 4-V of the SSMP states, "Upon development of land-based alternatives with acceptable environmental and public health impacts, the DEP shall notify EPA

of the availability of land-based management. Such notice shall serve as a basis for EPA's denial of the applications from New Jersey authorities for permits to ocean dump their sludge." (Part 4-V, Section II.C.). (See attached SSMP Part 4-V, Ocean Disposal).

B. Although the State Solid Waste Management Act requires that the SSMP be up-dated biennially, the DEP does not believe that any changes to the SSMP are needed for the ocean initiative.

C. The DEP has initiated a task force of DEP permit decisionmakers which meet with the authorities on a monthly basis. The DEP will provide guidance to applicants on the content of the application, including the review and approval of air quality modeling protocols.

6. In your testimony, you say that sludge dumping should end in five years.

A. When would the five years begin to run?

B. What deadline should Congress adopt to end the ocean dumping of sewage sludge?

Answer:

A & B - The 106 mile deep water disposal site has historically been redesignated every five years for sewage sludge disposal with the current designation terminating on March 17, 1991. When Governor Kean delivered his 14 point plan in 1987 he was calling for a deadline for ocean dumping in five calendar years, which would place the deadline in 1991. The DEP recommends that 1991 be the deadline for ocean disposal of sewage sludge.

7. New York City strongly opposes any effort to end ocean dumping of sewage sludge.

A. What efforts are you making to work with the State of New York to end ocean dumping of sewage sludge?

Answer:

A. The State of New Jersey is not presently working with the State of New York on ending ocean sludge disposal. We feel that it is the responsibility of the generators of sewage sludge to conduct the planning and implementation of land-based alternatives and the responsibility for each state

involved to oversee and regulate this process. New Jersey DEP is providing this oversight and regulations for the six authorities within their jurisdiction.

Designation of Wood Incineration Site

A. There have been instances of bathers at New Jersey beaches being hit by pieces of wood. Wood also has washed onto beaches.

1. What evidence do you have that this wood comes from the wood incineration operations off the New Jersey coast?

2. Why do you oppose designation of the wood incineration site while supporting permit-by-permit review of proposed wood incineration operations?

3. What steps are you taking to assure that rotting piers along the coast are not causing a hazard to bathers and boaters?

Answers:

1. There is no evidence that the floating wood seen along our coast during the 1987 summer season came from the wood incineration operations off of our coast.

2. We oppose the permanent designation of a commercial wood incineration site along our coast since this action would allow for a greatly increased number of burns per year. Presently, the DEP monitors the permitted burns under a Memorandum of Agreement with EPA enacted in January of 1987. Since that time, all of the burns have been monitored by DEP staff. We took this responsibility on from EPA for two reasons. First, we felt that the level of surveillance provided by EPA was inadequate to protect against wood being dumped into the water. Second, the burns being conducted are part of the New York Harbor Cleanup Program of which New Jersey is a sponsor. We felt that it was our duty to ensure that this program, being conducted with New Jersey dollars, was properly monitored. The Harbor Cleanup Program is important towards ensuring that rotting timbers do not wash out of the harbor after storms or high tides. Therefore, we do not oppose all burn operations and feel that those that work for the public's good should continue under permits. However, we feel that the burns must be properly monitored and that this monitoring is the responsibility for the federal government. We believe the only way to ensure that EPA will provide enough surveillance is through a permit-by-permit review of

wood burning operations. Therefore, we will continue to oppose any permanent site designation.

3. As I mentioned in my answer to question number 2 the DEP is monitoring all wood incineration activities under EPA permits through the Memorandum of Agreement which deputizes state employees for that purpose. As your question relates to rotting piers located on our coast which might collapse and cause a hazard to boaters and bathers, the responsibility for inspection of these structures rests with the local building inspectors. Their responsibilities are governed under the Uniform Building Code regulations published in N.J.A.C. Title 5:23.

   New construction along the waterfront of our coast is governed under the Waterfront Development (N.J.S.A. 12:5-3) and the Coastal Area Facilities Review Act (N.J.S.A. 13:19-1), which require permits and inspections from the Division of Coastal Resources within the DEP. However, structures which pre-date their regulations are not covered under any department inspection program.

EXECUTIVE SUMMARY

STATEWIDE SLUDGE MANAGEMENT PLAN

The Statewide Sludge Management Plan is a component of the Statewide Solid Waste Plan and is mandated by State Statute under the Solid Waste Management Act N.J.S.A. 13:1E-1 et seq. and also satisfies the residuals management planning mandate of the Water Quality Planning Act N.J.S.A. 58:11A-1 et seq. The Statewide Sludge Management Plan addresses management of residuals which are generated by the domestic waste water treatment process. Management of these materials in New Jersey has become increasingly difficult due to the ever increasing volumes of sludge generated and the decreasing number of management sites. New Jersey is currently managing only 28 percent of the sludge it produces. The Federal Clean Water Act 33 U.S.C. Sec. 1251 et seq. mandates upgrading of all sewage treatment plants which will result in an increase of New Jersey's sludge production by 60 percent. This increase will aggravate New Jersey's sludge management problems.

The Statewide Sludge Management Plan is a blueprint for resolving the residuals management problems in the State. The Plan establishes the standards, criteria and objectives by which District Sludge Management Plans will be evaluated for inclusion in the State Solid Waste Management Plan. Consistency with the State and District Solid Waste Management Plans will be a determining factor in approval of management facilities.

The Statewide Sludge Management Plan analyzes the existing and future residuals management problems of the State. Existing technologies are discussed along with the financial needs and means for implementing additional management alternatives. Listings of existing facilities and operations are included. The Plan is organized in six major Parts as detailed below.

PART 1

THE INTRODUCTION TO THE PLAN - This Part explains the format and use of the Plan, defines sludge and septage, explains the purpose and authority of the Statewide Sludge Plan, gives a history of the problem, defines the responsibilities for resolving sludge management problems (State, District, 201 Agencies, individual generators, and the public), and describes the public participation process, including the work of the Sludge Task Force.

PART 2

APPLICABLE LEGISLATION, REGULATIONS AND POLICY - This Part lists various State and federal laws, regulations, and guidelines relating to sludge management, defines New Jersey's Policy on Land Based Sludge Management, and outlines the Department's strategy for implementing the management policy. Policies on the following specific aspects of sludge management are also stated: "clean" sludge and septage, conversion of sludge-septage to waste Class 27, septage management , sludge storage, agricultural use of sludge, and program responsibilities.

PART 3

EXISTING CONDITIONS - This Part is presented in two major sections. The first section addresses the status of sludge management in New Jersey, and the second addresses the status of sludge related planning in New Jersey.

The first section presents various tables of inventories on a county-by-county basis. These tables include inventories of existing domestic and publicly operated treatment plants including conditioning, digestion, and dewatering; inventories of the management modes currently in use; and inventories of projected sludge production and management needs. Also in the first section, the State's potential for managing sludge through agricultural applications is evaluated, and it is determined that existing crop acreage in the State is roughly four times greater than required acreage for the worst case sludge projections. It is also concluded that industrial discharges must be pretreated in order to improve sludge quality for land application.

The second section of Part 3 reviews the county-by-county progress of planning for pretreatment of industrial discharges, septage management, 201 sludge management, and sludge planning by Solid Waste Management Districts. This review is important to the integration and cross adoption of these Plans since inconsistencies will confuse and obstruct the implementation of necessary sludge facilities.

PART 4

MANAGEMENT ALTERNATIVES - This Part is divided into eight subparts plus an introduction. Each section is devoted to examining a specific management method and the format for each is identical. Each section begins with an introduction, followed by a statement of the Departmental policy applicable to the specific

management method, an explanation of the technical aspects of the method, identification of the potential environmental impacts associated with the process, identification of applicable legislation and regulations which address those impacts, a description of the Permitting process, a listing of sources of information and guidance, and inventories of the existing New Jersey facilities of that type. This format is applied to the following management alternatives: Land Application, Composting, Thermal Reduction, Landfilling, Ocean Disposal, Innovative and Alternative Systems and storage. The eighth subpart follows this same format and addresses emergency situations. The information contained therein applies only to emergencies as determined by the Department.

Part 4 points out that every management alternative may have associated environmental impacts, if improperly implemented and managed, and explains how the Permitting and regulatory process must be used to control the impacts. The important message of Part 4 is that selection of management alternatives is frequently a question of choosing the alternative with the fewest negative environmental impacts.

PART 5

FINANCIAL ALTERNATIVES - this Part presents the State Policy on Financing Sludge Projects and suggests a variety of financing approaches which might be employed for implementing the selected management alternative. The financing approaches are divided into public financing tools (pay-as-you-go, bonding, grant programs, loan programs), private financing, and mixed public and private funding. The regulatory controls and tax benefits associated with these approaches are discussed along with the development of user costs.

PART 6

IMPLEMENTATION - This Part of the Plan details the planning and implementation requirements for Districts, 201/Areawide Water Quality Management Planning Agencies and sludge generators (treatment plants). It sets forth the standards and criteria by which District Sludge Management Plans will be evaluated for Department approval. The residuals management alternatives with prior Department Approval which must be included as part of the District Plans are listed. The implementation requirements for the Districts are also discussed. Standard planning forms which must be used for District submissions are described in Part 6 and provided in Appendix K.

GENERAL DISCUSSION

There are several aspects of the Plan which particularly merit the public's attention at this time. Consistent with the resource recovery and reuse objectives of the Solid Waste Management Act, the Plan favors the use of land application and resource recovery methods of management. Landfilling of sludges is disallowed except in overriding and emergency cases as detailed in Parts 4-V and 4-VIII of the Plan. The Plan also recognizes that while the Solid Waste Management Act has reduction in the amount of sludge which is ocean disposed as one of its goals, it also recognizes the regulatory authority of the EPA over this activity. Nonetheless, the Department is requiring planning for land based management of all ocean disposed sludge in New Jersey.

In February, 1984, staff of the Residuals Management Program and members of the Sludge Task Force met with counties, sewerage authorities and other interested groups to explain the planning effort and generate additional public recommendations and comments which were then incorporated into the Plan.

Five informational seminars were held in February and March of 1985 with members of the legislative community, sewerage authorities and Freeholders . The purpose of these seminars was to familiarize the public officials with the Plan and the requirements which would be imposed as a result of its promulgation and to afford them the opportunity to comment. And field trips to land application sites were also conducted for elected officials during August of 1985.

Three public hearings were held to receive comments on the Draft Statewide Sludge Management Plan as follows:

Morris County Court House
Freeholders Public Meeting Room
Ann Street entrance
Morristown, New Jersey
Date: December 16, 1986
Time: 10:00 a.m.

Mercer County Community College
Audio Visual Building, Room 110
1200 Old Trenton Road (Route 535)
West Windsor, New Jersey
Date: December 17, 1986
Time: 7:00 p.m.

Vineland City Hall
Council Chambers
7th and Woods Streets
Vineland, New Jersey
Date: December 18, 1986
Time: 10:00 a.m.

Comments received at these hearings and mailed to the Department prior to the close of the public comment period which was extended to April 27, 1987 have been incorporated where appropriate and addressed in the Response to Comments Document.

Additional information on the Statewide Sludge Management Plan can be obtained by contacting:

Helen Pettit-Chase, Chief
Residuals Management Section
Bureau of Municipal Waste Management
Division of Water Resources
CN-029
Trenton, New Jersey 08625
(609) 984-4429

PART 4 VI

OCEAN DISPOSAL

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PART 4-VI

OCEAN DISPOSAL

I. INTRODUCTION

Approximately one half of the municipal sewage sludge generated in the State of New Jersey is disposed in the ocean. The ocean may be an acceptable disposal medium with an enormous regenerative capacity, according to a 1981 Report of the National Advisory Committee on Oceans and Atmosphere which suggested that the ocean has a place in an overall waste management strategy.

Long term solutions will require a solid scientific data base. The more we know about the ocean, and waste disposal technology, the better prepared we will be to make technically sound decisions. Trade-offs must also occur if we are to balance the various ocean disposal sites with the economic and environmental impacts of land based alternatives.

The Department has not been in the forefront of the ocean dumping issue because disposal activities occur beyond the State's three mile territorial limit; the direct regulatory burden therefore falls on the federal government. In 1971, the State of New Jersey aggressively attempted to regulate ocean dumping through the enactment of the State Clean Ocean Act of 1971, but federal legislation in 1972 preempted the Department's initiative.

II. POLICY

A. GENERAL DISCUSSION

Ocean disposal of sludge is a federally regulated activity under the permitting authority of the United States Environmental Protection Agency (EPA). Elimination of this alternative would mean transferring the responsibility for disposal of over 3 million wet tons per year of sewage sludge from a federal regulatory jurisdiction to that of the State.

The Department plays several subordinate but important roles in the ocean dumping issue. These roles include: (1) ocean advocacy for the protection of coastal environments, including beaches, water quality and marine fisheries; (2) development of a sensible sludge management program in co-operation with the sewerage authorities; and, (3) regulation of sludge incinerators, land application, and other management options to ensure the protection of environmental quality through management of land based alternatives. The Department intends to be more active in advocating environmentally sound alternatives to ocean dumping.

As a first step in this more active role, former Commissioner Robert E. Hughey, on September 23, 1982, signed Administrative Order No. 27 which created a Department committee to formulate a strategy for managing wastes that are currently dumped in the ocean. The Committee on Ocean Waste Management was formed to coordinate the programs and policies of the Department on current practices and alternative methods of waste disposal that affect the ocean and near-shore coastal environment.

The Committee on Ocean Waste Management and the Sludge Task Force participated jointly in development of a strategy for decision making on ocean disposal of sludge. It is the policy of this Department to follow this strategy in resolution of the ocean disposal issue.

B. DECISION MAKING STRATEGY

The strategy for decision-making for management of sewage sludge as described below is predicated on two premises. First, a comprehensive basis for decision-making must include a multi-media assessment that evaluates both the land based alternatives and the several ocean disposal sites. Second, by improving the quality of the sludges, the management options can be expanded and the decision-making process made easier. The aims of the Department's proposed strategy are to:

1. Provide a mechanism to make long term decisions on the use of the ocean, the land, and the air as disposal media for sewage sludge generated by the current ocean dumpers.

2. Move immediately to improve the quality of sewage sludge and thereby expand the long term management options.

3. Provide a funding source to assist the implementation of long term sludge management options by the affected sewage authorities and municipalities if landbased management emerges as being more preferable than continued ocean disposal.

C. SUMMARY POSITION

New Jersey has a significant interest in the effects of waste disposal in the ocean. It also has a large stake in maintaining and enhancing ocean water quality. The $6 billion per year coastal tourism and year-round economy and the nearly $1 billion per year commercial and recreational marine fishing industry all depend on a healthy ocean environment. Moreover, the State recognizes that there is significant marine degradation in the New York Bight Apex and that ocean dumping has become an increasingly visible and important political issue.

The Department seeks practical solutions to all aspects of the ocean dumping issue. Decision-making must take into account both the environmental and economic consequences of management in the ocean, on the land, and in the air. The State proposes a comprehensive State-Federal environmental analysis of the sewage sludge question. New Jersey, New York and the EPA must weigh all the facts before a final decision on ocean disposal versus a land based alternative is made.

The Department and the six remaining ocean dumping New Jersey sewage authorities have been proceeding on a good faith basis to solve this problem. The State is committed to achieving an effective, reasonable bi-State and joint State-Federal solution to ocean dumping of sewage sludge, and looks to the Federal government, to Congress and the Administration, to establish a national program for addressing the New York Bight ocean disposal dilemma. This can only be done through a thorough understanding of the interrelated

problems and a follow through with legislation, regulation and an adequate funding base.

In the 1970's separate State and Federal environmental programs were created. The 1980's must be a period of integrating those programs in a multimedia approach (land, air and water). The Department endorses proposals for additional study and coastal area review which will broaden the technical basis for sludge management decisions. The Department will continue to evaluate research on ocean dumping impacts. Upon development of land-based alternatives with acceptable environmental and public health impacts, the Department shall notify EPA of the availability of land-based management. Such notice shall serve as a basis for EPA's denial of applications from New Jersey authorities for permits to ocean dump their sludge.

III. TECHNICAL ASPECTS

Ocean disposal of sludge is probably the least operationally complex management method. The sludge is loaded onto a barge and transported to the ocean disposal site. The sludge is discharged from the moving vessel continuously throughout the site. EPA is currently attempting to establish discharge rates based on the relative quality of the sludge. Dispersion of the sludge through the water column is facilitated with liquid sludges, therefore dewatered sludges are unacceptable for ocean disposal. At the 12-mile site, part of the discharged sludge settles to the bottom of the ocean, and part is suspended, diluted and dispersed through the water column adding to the biological oxygen demand in the disposal area. At the 106 mile site, EPA projects that all sludge particles will be dispersed in the water column with little or no measurable accumulations on the bottom. NOAA scientists have calculated that it would take approximately 120 days for the sludge particles to reach the bottom.

IV. ENVIRONMENTAL IMPACTS

Since the late-1950's, public and private groups have reported occurrences of unusual bottom conditions such as turbidity, low dissolved oxygen levels, and accumulation of black sediment, with concomitant death of bottom-dwelling marine organisms. In most cases, it was determined that the turbidity was caused by an extremely dense growth of algae (algal bloom).

In the summer of 1976, a massive fishkill incident directed the attention of the metropolitan area to the Northeast coastal waters An area of severe oxygen depletion was identified from Sandy Hook to Avalon, a distance of about 100 miles, and as much as 40 miles or more wide. These conditions spread slowly south, finally affecting over 3,000 square miles of ocean bottom. Tremendous numbers of lobsters, surf clams, and bottom fish died in the oxygen-depleted waters. A few incidents of direct impact on New Jersey beaches occurred, involving dead or dying fish and the washing ashore of a brownish-black odorous material. The press attributed the condition to a "sludge monster."

Several investigations were made into this fishkill incident. The studies traced the development of conditions leading to the fishkill and considered possible initial causes for the marine ecosystem upset. All reports agreed that extensive anoxic conditions were directly caused by the decay of Ceratium tripos (a dinoflagellate), and later of the dead bottom organisms. Scientists also agreed that the large percentage of sunny days contributed to the dense Ceratium growth

and that the absence of major storms prevented any effective breakup of a local thermocline (temperature stratification of the water). Although these natural conditions were undoubtedly factors in the algal bloom and subsequent fishkill, many observers believed that man's input of various wastes into the marine ecosystem supplied a portion of the nutrients needed to support such extensive algal growth.

Although sewage sludge is perceived to be at the heart of the ocean dumping controversy, many other factors are responsible for the impacts which the public wrongly attributed to the dumping of sewage sludge. Both the dumping of dredge materials and the Hudson-Raritan effluent plume have been shown to be major causes of degradation in the New York Bight. The Hudson-Raritan plume consists of billions of gallons of untreated as well as treated wastewater, urban and agricultural runoff and toxic discharges of an accidental, inadvertent or illegal nature.

The public has expressed particular concern over the floatables which wash ashore littering recreational beaches. These are not generally a result of the discharge of treated sewage sludge. Items of this nature are generally removed prior to the primary clarification stage of wastewater treatment through properly designed and operated grit and screening process, because they cause problems in the treatment system. In most cases these floatables are more probably attributed to the dumping of untreated wastewater from combined sewerage overflows, raw sewerage, and the discharge of storm water collection systems which are subject to no treatment process. The public's misconceptions of the source of floatables has put political pressure on the legislature to end the ocean dumping of sewage sludge when in fact so doing would not resolve most of the public's concerns regarding floatables. However, pursuant to this Plan, New Jersey's ocean dumping treatment plants will be required to address means to prevent floatables from contaminating their sludge.

It is important for the public to recognize that the ocean water quality is strongly associated with control of activities on land including, but not limited to, coastal development, stormwater runoff, air emissions, and inadequately treated sewage.

V. APPLICABLE LEGISLATION, REGULATIONS AND COURT ACTION

A. FEDERAL CONTROLS

1. Early Federal Legislation

Federal control of ocean dumping dates back to the New York Harbor Act of 1888, which prohibited the disposal of wastes, except for that flowing from streets and sewers, into the harbors of New York, Hampton Roads, and Baltimore. The Refuse Act of 1899 prohibited the disposal of materials into navigable waters where disposal impeded safe navigation. Both acts granted to the U.S. Army Corps of Engineers the authority to designate disposal sites and to issue permits for disposal based primarily on transportation and navigation criteria rather than on environmental criteria.

2. The Marine Protection, Research, and Sanctuary Act (MPRSA) 33 U.S.C. §1401 et seq. and 16 U.S.C. §1431 et seq.

Before the passage of the MPRSA on October 23, 1972, there were few direct legal controls, either inside or outside the United States, on dumping of wastes at sea. Under the MPRSA, EPA is authorized to administer and enforce the entire ocean dumping program and to issue Permits regulating the dumping of all materials except dredged materials which are dumped under Permits issued by the U.S. Army Corps of Engineers and are consistent with EPA criteria. The Act consists of three parts: Title I -- Ocean Dumping; Title II -- Comprehensive Research on Ocean Dumping; and Title III -- Marine Sanctuaries.

Title I establishes the Permit Program for the disposal of dredged and non-dredged materials, and prohibits the dumping of biological, radiological and chemical warfare agents and all high-level radioactive wastes. Title II provides for comprehensive research and monitoring of the effects of ocean dumping on the marine environment. Title III establishes the program for the designation of marine sanctuaries.

Several Federal agencies have responsibility for administering the MPRSA. EPA's responsibility is to review, grant, and enforce dumping Permits for all sewage sludge, and to designate and manage all disposal sites. The Coast Guard is responsible for enforcing Permit conditions and discouraging unauthorized discharges. The National Oceanic and Atmospheric Administration (NOAA) conducts monitoring and research programs on the effects of ocean dumping on the marine environment.

3. Water Resources Development Act of 1986 and the Water Quality Act of 1987

Recently two federal laws went into effect. In November, 1986, the President signed into law H.R. 6, the Water Resources Development Act of 1986, and in January, 1987, Congress approved the Water Quality Act of 1987. Both Acts place restrictions on the use of the 106 mile site. The EPA Administrator may not issue or renew any Permit which authorizes any person or authority, other than those sewage authorities currently using the site, to dump municipal sludge within the 106 mile ocean waste dump site.

B. STATE CONTROLS

States have no legal authority over the discharge of any materials in the ocean beyond the three mile territorial limit.

The State, however, through the Department of Environmental Protection, now plays several subordinate but important roles in ocean waste management. These roles include: (1) ocean advocacy for the protection of coastal environments, including beaches, water quality and marine fisheries; (2) development of a sensible sludge management program in cooperation with the sewage authorities; and (3) regulation of sludge incinerators, land application, and other management options to ensure the protection of environmental quality through management of land based alternatives.

C. INTERNATIONAL CONTROLS

The principal international agreement governing ocean dumping is the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Ocean Dumping Convention), which became effective in August 1975, upon ratification by 15 contracting countries including the United States. Designed to control dumping of wastes in the oceans, the Convention specifies that contracting nations will regulate disposal in the marine environment within their jurisdiction, prohibiting all disposal without Permits. Certain other hazardous materials are prohibited, such as biological chemical warfare agents and highlevel radioactive matter. Certain other materials (such as cadmium, mercury, organohalogens and their compounds, oil, and persistent synthetic materials that float) are also prohibited, except when present as trace contaminants. Other materials--arsenic, lead, copper, zinc, cyanide, fluoride, organosilicon, and pesticides--are not prohibited from ocean disposal, but require special care. Permits are required for ocean disposal of materials not specifically prohibited. The nature and quantities of all waste materials, and the circumstances of disposal, must be periodically reported to the International Maritime Organization which is responsible for administration of the Convention.

D. COURT ACTION

It was EPA's position that the 1977 Amendments to the Marine Sanctuaries Act prohibited all ocean dumping activities if not in compliance with specific environmental impact criteria after December 31, 1981, without provisions for exception. New York City argued that Congress had, barred only dumping which "unreasonably" degrades the marine environment, and that continued dumping at the 12-mile site by the City would have minimal future impacts.

The court's decision, issued through a final Consent Judgement with New York City, recognized that the 1981 deadline should remain intact but only for dumping that EPA determines, pursuant to criteria that genuinely consider all of the relevant statutory factors, will unreasonably degrade the environment. Thus, the court gave EPA responsibility to determine the validity of New York City's claims as to the relative environmental effects of continued ocean dumping vs. implementation of a land-based management.

The result of this court decision made it clear that EPA would no longer reject applications for permits solely on the basis of the 1981 legislative deadline. EPA will be able to implement the Act by considering the relative consequences, including environmental and economic effects, of both ocean and land-based management methods when evaluating permit applications.

In view of the impacts that the court decision would have on New Jersey's ocean dumpers and the duplication of substantive issues with the New York City case, six of the New Jersey sewerage authorities holding special disposal permits (listed in Table 4-IV-1) became parties to the litigation, and the New Jersey DEP was named as a co-defendant (with EPA) in a suit. Judge Sofaer's, (SDNY), decision, on the New York case, which would permit continued ocean dumping of sewage sludge, was included by Judge Sarokin (DNJ) in the Draft Consent Judgements developed for the six New Jersey parties in May 1982. In addition, in view of the Department's minimal involvement in ocean dumping Permitting activities, it was determined that

each of the Authorities would enter into the Consent Judgements solely with the EPA (and the Department was removed entirely from the action and, thus, any future actions).

On May 13, 1982, Judge Sarokin reviewed all formal comments on the draft Consent Judgements by the parties involved, as well as considering the motions to intervene that had been filed by various environmental groups. After review, the petitions to intervene were denied and the Consent Judgements were finalized. Specific provisions of the Judgements include:

1. The ocean dumping Permit applications, which would not be specific to any one site, were to be filed by each of the Authorities by November 19, 1982;

2. EPA would review the Permit applications in accordance with law and with the Judgement in the City of New York vs. EPA;

3. Ocean dumping would be authorized in accordance with the Authorities' prior interim conditions at the 12-mile site, pending EPA's designation/redesignation procedures. However, Special Conditions of the existing Permits, requiring the construction of onshore facilities for the management of sludge, would not be required; and

4. Specific actions that might be taken by the ocean dumpers were identified if EPA chooses not to redesignate the 12-mile site and instead designates the 106-mile site.

5. Once action is finalized on site designation (item 3 above), then the application with regard to ocean site specific data is to be completed and submitted to the EPA. Also, discharge rates are to be revised to comply with EPA's Regulations (40 CFR Section 227.8, see Appendix D).

Pursuant to these provisions the EPA has decided to designate the 106 mile site and has not redesignated the 12 mile site. Accordingly the six ocean dumpers were required to submit documentation for their sludge disposal at the 106 mile site in April 1985. That documentation has been reviewed by EPA and a determination was made on July 8, 1985, to impose the following schedule on the remaining 6 ocean dumpers. By May, 1986, 25% of the sludge currently ocean dumped by the 6 New Jersey treatment plants were required to be moved out of the 12 mile site and into the 106 mile site. By December, 1987 New Jersey's ocean dumpers are required to have moved 100% of their sludge to the 106 mile site. Continuance at the 12 mile site during the period up through December, 1987, is provided by court order.

VI. PERMIT PROCESS

The Federal Environmental Protection Agency has established a permitting process for ocean dumping. 40 CFR Parts 220-229 establish the procedures and criteria for the issuance of permits by EPA pursuant to Section 102 of the MPRSA as well as specific waste exclusions, promulgated pursuant to that act.

This Permit system went into effect April 23, 1973. Regulations and criteria published on October 15, 1973 made all Permits interim and conditional. Expanded regulations and criteria were proposed on June 28, 1976 and finalized after the

1976 fishkill. These final regulations and criteria established for all interim Permit holders the requirement that a schedule for phasing out of ocean dumping by December 31, 1981 be included in the Permit. On November 4, 1977, President Carter signed into law the Marine Protection, Research and Sanctuaries Act Amendments of 1977, (P.L. 95-153), legislating the December 31, 1981 deadline for the end of ocean dumping of sewage sludges which would cause unreasonable environmental impacts. Ocean dumping of sludge continues, however, pursuant to court actions discussed in Section V.D. of this Part.

Pursuant to the Federal Water Resources Development Act of 1986 and the Water Quality Act of 1987, EPA is prohibited from issuing or renewing any Permit which authorizes any person, or authority, other than those sewage authorities currently using the site, to dump sludge at the 106 mile site.

A. PERMIT REVIEW CRITERIA

Ocean dumping Permits are currently issued only where the "need" can be substantiated pursuant to 40 CFR Part 227, Subpart C (Appendix D-1). These Permits provide for controlled release of sewage sludge of a specified quality such that the environmental conditions at the 106 mile site will not be adversely impacted. Discharge of floatables is prohibited.

In making permitting decisions, the EPA's approach to ocean dumping may be summarized as follows:

1. The agency will, as an overall principle, protect the oceans from significant adverse effects of waste disposal. The agency will particularly assure that the oceans are not used for "cheap" waste management as a matter of short run economic considerations alone;

2. In any specific case, the agency will allow ocean disposal of a waste only if the applicant can demonstrate that no practicable alternatives are available that have less impact on the total environment. EPA will apply a rule of reason in determining practicability; and

3. For the long run, the agency will actively encourage environmentally beneficial approaches such as waste minimization, recycling and reuse.

B. PERMIT APPLICATIONS

Applications for any of these Permits may be filed with the EPA Administrator or the EPA Region II Administrator, as the case may be, to act on the application. It should be noted, however, that EPA is discouraging "new" applications for ocean dumping. Applications must be made in writing and must contain, in addition to any other material which may be required, the following:

1. Name and address of applicant;

2. Name of the person or firm transporting the material for dumping, the name of the person(s) or firm(s) producing or processing all materials to be transported for dumping and the name or other identification, and usual location of the conveyance to be used in the transportation and

dumping of the material to be dumped, including information on the transporting vessel's communications and navigation equipment;

3. Adequate physical and chemical description of material to be dumped, including results of tests necessary to apply the Criteria specified in 40 CFR Part 227, and the number, size, and physical configuration of any containers to be dumped;

4. Quantity of material to be dumped;

5. Proposed dates and times of disposal;

6. Proposed dump site, and in the event such proposed dump site is not a dump site designated in Subchapter H, detailed physical, chemical and biological information relating to the proposed dump site and sufficient to support its designation as a site according to the procedures of Part 228 of this Subchapter H;

7. Proposed method of releasing the material at the dump site and means by which the disposal rate can be controlled and modified as required;

8. Identification of the specific process or activity giving rise to the production of the material;

9. Description of the manner in which the type of material proposed to be dumped has been previously disposed of by or on behalf of the person(s) or firm(s) producing such material;

10. A statement of the need for the proposed dumping and an evaluation of short and long term alternatives for management, treatment or recycling of the material. Alternative means of management shall include well injection, incineration, land application, biological, chemical or physical treatment; and recovery and recycling of material within the plant or at other plants which may use the material. The statement shall also include an analysis of the availability and environmental impacts of such alternatives; and

11. An assessment of the anticipated environmental impacts of the proposed dumping, including without limitation the relative duration of the effect of the proposed dumping on the marine environment, navigation, living and non-living marine resource exploitation, scientific study, recreation and other uses of the ocean.

A processing fee of $1,000 is to be charged in connection with each application for a Permit for dumping at an existing designated site. An additional $3,000 is charged for an ocean dumping Permit at a site that is not currently designated for same.

VII. EXISTING OCEAN DISPOSAL

A. OCEAN DUMPING SITES FOR SLUDGE

At the present time, ocean disposal of municipal sewage sludge occurs at two EPA designated disposal sites. The 12-mile site in the New York Bight and

Atlantic Ocean is being phased out in favor of the deep-water 106-mile site (see figure 4-IV-1).

1. 12 - Mile Site

The 12 - Mile Sewage Sludge Site, located 12 miles southeast of Sandy Hook. It has been used continuously since 1924 for the disposal of municipal sewage sludge from primary and secondary treatment plants in New York and New Jersey. After passage of the MPRSA, the EPA designated the area as an "interim" site in 1973.

The site was chosen jointly by New York and New Jersey following a settlement by the United States Supreme Court. The settlement itself resulted from a suit filed by New York City against the Passaic Valley Sewerage Commissioners (PVSC), which operates the largest sewage treatment plant in New Jersey, to terminate the discharge of sewage sludge by PVSC directly into Upper New York Bay. The site comprises 6.6 square nautical miles with water depths between 22 and 27 meters.

During the 1970's, more than 200 sewage treatment plants dumped at this site. Today, only nine sewage agencies, representing 26 plants in New York and New Jersey are authorized to use the site. However, in 1985, the volume of sludge being disposed at the 12-mile site rose to 7.2 million wet tons, an increase of 2.3 million wet tons over the 1972 level of 4.9 million wet tons. This increase over time is due to upgrading of sewage treatment facilities in the New York/New Jersey metropolitan area.

In April of 1985, EPA took formal action to close the 12-mile site by denying the petitions of the current permittees (both in New York and New Jersey) to continue use of the site. Negotiations were held between EPA and the dumpers during a three month period following the decision. The basis for the negotiations was to make the transition to the 106-mile site as rapidly and orderly as possible taking into consideration the sewage agencies budgeting cycle, the availability of a transport mode, and the time necessary to competitively bid for services and/or to construct work vessels.

2. 106 - Mile Site

The 106 - Mile Site, a 965 square mile area, is a deepwater site (1,500 to 2,700 meters water depths) located 106 nautical miles southeast of Ambrose Light Tower just beyond the edge of the Continental Shelf due east of Delaware Bay. Since 1961, the site has been used intermittently for disposing wastes not suitable for land management, such as chemical wastes, industrial acids, sewage sludge and sewage sludge digester cleanout residue. From 1961 to 1978 about 5.1 million metric tons of chemical wastes, 102 thousand metric tons of sewage sludge and 287 thousand metric tons of digester residue were dumped at this site.

The EPA has designated the 106-mile site in 1985 for disposal of municipal sludges for a period of five years commencing with the start

of disposal operations in the Spring of 1986. Extensive monitoring and evaluation of disposal activities will be the basis for possible re-designation after the initial five year period.

The decision to move from the 12-mile site to the 106-mile site was based on sound environmental reasoning and an outcry of public opposition to the shallow-water, near-shore 12-mile site. In selecting the site, EPA took into consideration the greater water depths, the active hydrodynamics and the lesser relative value of the living marine resources as compared to the resources on the Continental Shelf. The designation was also consistent with the intent of Congress in MPRSA to utilize, whenever feasible, disposal sites beyond the edge of the Continental Shelf.

B. EXISTING OCEAN DUMPERS

In 1976, 137 New Jersey municipalities were engaged in ocean dumping of sewage sludge. Ten ocean dumpers were considered major ocean dumpers, (treating sewage flows of greater than 4 mgd), and held their own Permits. The remaining were designated minor ocean dumpers with their Permits issued jointly to the hauler and generator.

By 1981, all of the minor ocean dumpers had instituted land-based management alternatives, thus phasing out their use of the ocean as a repository for their wastes. In addition, two of the major ocean dumping Authorities, Camden County Municipal Utilities Authority and Middletown Township Sewerage Authority, had constructed composting facilities through assistance of the Federal Construction Grants program and State-aid, and no longer required disposal in the ocean.

The remaining ocean dumpers, Linden-Roselle Sewerage Authority, Rahway Valley Sewerage Authority, Middlesex County Utilities Authority, Joint Meeting of Union and Essex Counties, Passaic Valley Sewerage Commissioners, and Bergen County Utilities Authority continue to ocean dump. Pursuant to court actions (see Section V.D. of this Part), these six New Jersey sewerage agencies serve a population of close to 3 million people plus a large segment of the industrial base in the northeastern portion of the State. These agencies contribute approximately 42% of the total sludge disposed of in the ocean while three sewerage agencies in New York contribute 58%.

By 1980, five of the six sewage authorities had submitted applications to DEP for air pollution control permits for incinerating sewage sludge (Rahway S.A. and Linden-Roselle S.A. filed a joint application). Only one application, Essex-Union Joint Meeting, was conditionally approved; the remaining applications were denied for three reasons: (a) projected violation of the particulate emission standard, (b) insufficient afterburning capability to control organic emissions, and (c) projected high emissions of heavy metals. Subsequent submissions by the authorities showed better air pollution control and lower particulate and metal emissions. With additional air pollution control devices, the incinerators appeared to meet the particulate standard, but heavy metals remained a problem. At DEP's request, EPA conducted a Regional Air Quality Health Effects Study to evaluate the maximum ground level increase in the concentrations of heavy metals from the proposed sludge incinerators. The Report was issued in September, 1981, and

it concluded that ground level lead emissions would exceed the national standard for the protection of public health, the secondary standard for particulates would be exacerbated, and the public health risk associated with increases of cadmium and chromium would be unacceptable.

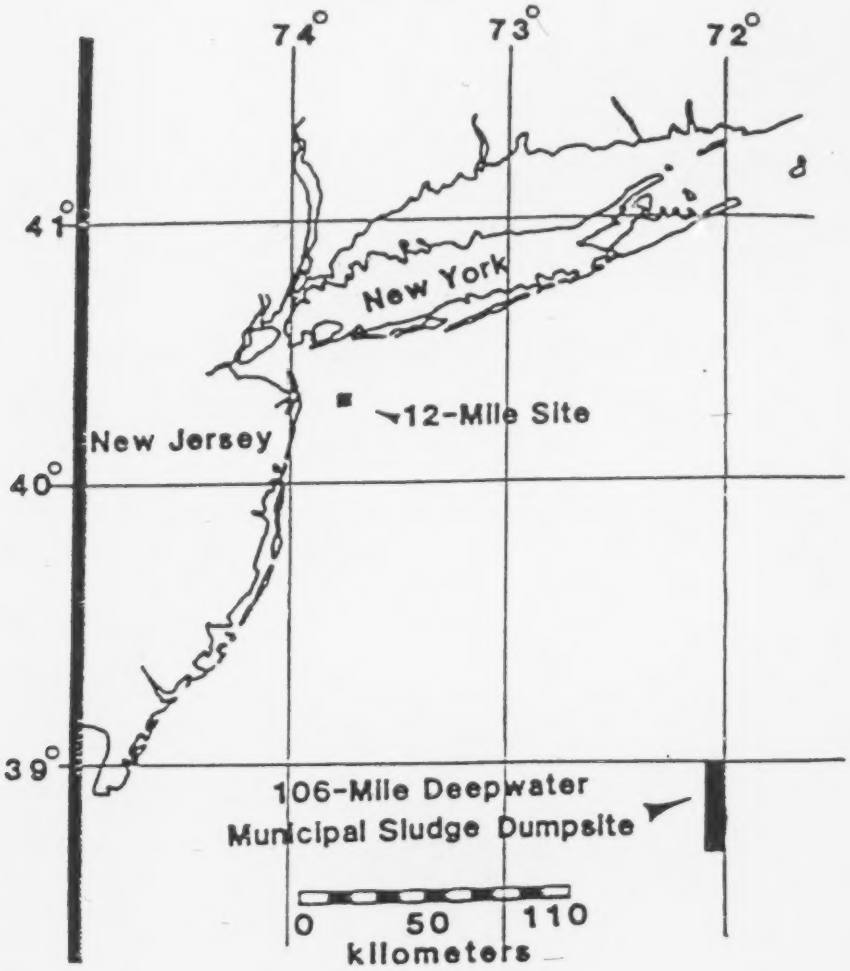
By applying state of the art air pollution control technology, without consideration to cost, three proposed incinerators, representing four of the six sewage authorities, might be found acceptable, largely due to lower amounts of heavy metals in the sludge. The proposed incinerators of the Passaic Valley Sewerage Commission and the Middlesex County Utilities Authority have less of a chance of being acceptable from a health effects standpoint. The latter two generate 62 percent of the New Jersey sludge now being dumped in the ocean, or one-third of the total sludge being dumped in the New York Bight.

For Passaic Valley and Middlesex County, industrial pretreatment to remove metals before discharging effluent to the sewers would be necessary to lower metals emissions and to reduce the health risks associated with incineration. Passaic Valley's latest Air Pollution Permit application projects emissions assuming industrial pretreatment and a wet electrostatic precipitator. The ground level emissions, based on an adjustment of the EPA's health effects study, indicated a risk that is near acceptable levels. Based on our current understanding of the potential air problems, incineration for Passaic Valley and Middlesex County may not be viable solutions for today. When industrial pretreatment programs are put in place, incineration may be an option for the future.

As a result of the EPA Report, sludge management planning for these 6 facilities must either reevaluate other land based management alternatives, redesign emission control equipment, or institute stringent pretreatment controls.

Table 4-IV-1 lists the existing ocean dumpers and their status toward implementation of land based management.

Figure 4-VI-1: Sewage Sludge Ocean Dump Sites in EPA Region II



From "The Shifting of Sewage Sludge Ocean Dumping from a Nearshore Site to a Site Off the Continental Shelf" by Francis G. Csulak, Edward D. Santoro and Dennis J. Suszkowski, PhD, all from EPA Region II.

EXISTING OCEAN DUMPERS, 1987

Sludge Management Planning
Significant Alternatives Considered

Treatment Plant	Estimated Present Sludge Quantity Dry (lbs/Day)	Dewatering	Interim	Final	Comments
Linden-Roselle Sewerage Authority	13,800	Vacuum filters, centrifuges, belt filters*, plate and frame presses	Dewatering (belt filter) and landfill disposal**	Land application, composting, co-disposalw/refuse derived fuel * & incineration, electric infrared furnace, starved-air combustion.	Proposed incinerator will have a problem obtaining air permits. Construction of dewatering facilities completed
Rahway Valley Sewerage Authority	31,200	Vacuum filters, centrifuges, belt filters*, plate and frame presses	Dewatering (belt filter) and landfill disposal**	Land application, composting, pyrolysis, codisposal w/refuse derived fuel - incineration*.	Same status as Linden-Roselle since ultimate disposal will be joint with Linden-Roselle. Dewatering construction completed
Middlesex Co. Utilities	223,200	Plate & frame presses, belt filters*, sand drying beds, vacuum filtration, centrifuges	Landfill (on-site or off-site)**	Multiple hearth incineration, co-disposal*, pyrolysis, organform, electric infrared furnace, incineration, composting, landfilling, oil-emersion dehydration/ incineration etc.	Applied for DEP approval for on-site landfill for interim-not approved. Proposed co-disposal for long-term - will face air emission and pretreatment problems. Dewatering designed.

*Selected Plan
**Considered prior to March 15, 1985

Table 4-VI-1 (Continued)

EXISTING OCEAN DUMPERS, 1987

Treatment Plant	Estimated Present Sludge Quantity Dry (lbs/Day)	Sludge Management Planning Significant Alternatives Considered: Dewatering	Interim	Final	Comments
Joint Meeting of Union & Essex Counties	72,800	Belt filter presses, centrifuges, vacuum filters, plate & frame presses*.		Incineration*, co-disposal w/Linden & Rahway landfill, composting	Proposed incinerator conditionally approved, metals emissions issue unresolved. Dewatering design not initiated. No interim plan.
Passaic Valley Sewerage Commissioners	529,256	Vacuum filters, centrifuges, belt filters, plate & frame presses*.	Storage off-site (adjacent to Turnpike).	Composting, landfilling, pyrolysis, co-disposal, incineration*	Construction of dewatering facilities completed. Storage design had been initiated (put on hold-issue must be resolved). Incineration faces air emission and pretreatment problems.
Bergen Utilities	58,800	Vacuum filters, centrifuges, belt filters*, plate & frame presses.	Landfill**	Co-disposal, thermal reduction by a multiple hearth incinerator*, composting, fludized bed, electric furnace, waterwall (incineration with refuse), pyrolysis	Negotiating with HMDC for landfilling/composting - still unresolved. Only dewatering equipment designed (not funded under the 201 program for construction). Incineration faces air emission problems.

*Selected Plan
**Considered prior to March 15, 1985

STATEMENT OF
TUDOR T. DAVIES
DIRECTOR
OFFICE OF MARINE AND ESTUARINE PROTECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
AND THE
SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

February 18, 1988

I AM TUDOR T. DAVIES, DIRECTOR OF THE OFFICE OF MARINE AND ESTUARINE PROTECTION OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY. IT IS A PLEASURE TO BE HERE TO TESTIFY BEFORE YOU ON THE AGENCY'S IMPLEMENTATION OF TITLE I OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT (MPRSA). TITLE I OF THE MPRSA ESTABLISHES THE U.S. LAW REGULATING OCEAN DUMPING AND ALSO SERVES TO IMPLEMENT THE LONDON DUMPING CONVENTION, AN INTERNATIONAL TREATY APPLICABLE TO OCEAN DUMPING AND TO WHICH THE U.S. IS A PARTY. IN ADDITION TO DISCUSSING OUR IMPLEMENTATION OF MPRSA TITLE I, MY TESTIMONY WILL BROADLY ADDRESS THE ISSUE OF AMENDMENTS TO THE MPRSA. I WOULD LIKE TO START BY DISCUSSING THE AGENCY'S IMPLEMENTATION ACTIVITIES.

THE AGENCY CARRYS OUT THREE MAJOR ACTIVITIES UNDER TITLE I OF THE MPRSA: PERMITTING, SITE DESIGNATION/MANAGEMENT, REGULATORY DEVELOPMENT, AND ENFORCEMENT. OUR FY 1988 BUDGET ALLOCATES $6.25 MILLION TO TITLE I ACTIVITIES, $2.37 MILLION FOR PERSONNEL EXPENSES AND $3.88 MILLION FOR CONTRACT WORK.

THE FY 1988 BUDGET PROVIDES 44.4 FTEs (HEADQUARTERS AND REGIONS) FOR THE OCEAN DUMPING PROGRAM. I WILL NOW PROVIDE A BRIEF SUMMARY OF OUR ACTIVITIES UNDER TITLE I.

WITH REGARD TO PERMITTING, THE MPRSA DIVIDES PERMITTING RESPONSIBILITY BETWEEN THE CORPS OF ENGINEERS, WHICH ISSUES DREDGED MATERIAL PERMITS SUBJECT TO EPA REVIEW, AND EPA, WHICH ISSUES PERMITS FOR NON-DREDGED MATERIAL. MY TESTIMONY WILL NOW BRIEFLY TOUCH UPON OUR ACTIVITIES UNDER EPA'S PERMITTING RESPONSIBILITY.

REVIEW OF PERMIT APPLICATIONS INVOLVES CAREFUL CONSIDERATION OF THE POTENTIAL IMPACTS OF THE DUMPING, CONSIDERATION OF THE NEED FOR THE OCEAN DUMPING, AND THE AVAILABILITY AND IMPACTS OF LAND-BASED ALTERNATIVES TO OCEAN DUMPING. OUR MARINE IMPACT CRITERIA ARE BASED PRIMARILY ON MARINE WATER QUALITY CRITERIA DEVELOPED BY THE AGENCY UNDER SECTION 304(A) OF THE CLEAN WATER ACT AND ON THE RESULTS OF WHOLE-WASTE BIOASSAY TESTS. THESE CRITERIA ARE USED TO CALCULATE A MAXIMUM RECEIVING WATER CONCENTRATION FOR THE WASTE FOLLOWING INITIAL DILUTION AND ARE INTENDED TO ASSURE THAT THE DUMPING WILL NOT RESULT IN ADVERSE IMPACTS ON MARINE LIFE. IN ADDITION, APPLICANTS ALSO ARE REQUIRED TO EVALUATE ALTERNATIVES TO THE PROPOSED DUMPING, INCLUDING TREATMENT OF THE WASTE TO REDUCE ITS TOXICITY PRIOR TO DISPOSAL, RECYCLE/REUSE, AND LAND-BASED DISPOSAL, IN ORDER TO ASSURE THAT THE OCEANS ARE NOT USED FOR DISPOSAL ON THE BASIS OF SHORT RUN ECONOMIC CONSIDERATIONS ALONE AND THAT THE

OCEANS ARE PROTECTED FROM UNREASONABLE DEGRADATION. I HAVE ATTACHED A TABLE TO MY TESTIMONY SHOWING HISTORICAL TRENDS IN DUMPING VOLUMES UNDER EPA ISSUED PERMITS, AS WILL BE DISCUSSED BELOW.

SINCE ENACTMENT OF THE OCEAN DUMPING ACT IN 1972, THERE HAS BEEN A SUBSTANTIAL DECLINE IN BOTH THE NUMBER OF DUMPERS AND THE AMOUNT OF INDUSTRIAL WASTE MATERIAL BEING DUMPED. IN 1973, THERE WERE APPROXIMATELY 6 MILLION WET TONS OF INDUSTRIAL WASTE OCEAN DUMPED; THIS AMOUNT DECLINED TO APPROXIMATELY 0.3 MILLION WET TONS PER YEAR IN 1986.

OUR REGIONAL OFFICES ARE RESPONSIBILE FOR REVIEWING AND ISSUING OCEAN DUMPING PERMITS. AT THE CLOSE OF 1987, THERE WERE 5 OPERATIONAL PERMITS FOR VARIOUS TYPES OF INDUSTRIAL WASTE. THREE WERE IN REGION II. THE OTHER 2 OPERATIONAL PERMITS WERE IN OUR REGION IX OFFICE. ONE OF THESE WAS FOR THE DISPOSAL OF NONTOXIC DRILLING CUTTINGS AND DRILLING MUDS AT A SITE LOCATED OFF THE SOUTHERN CALIFORNIA COAST. THE OTHER PERMIT WAS FOR THE DUMPING OF FISH WASTES AND ADDITIVES IN AMERICAN SAMOA.

TURNING TO SEWAGE SLUDGE, WHILE THE NUMBER OF DUMPERS HAS DECREASED, THE VOLUME OF MATERIAL DUMPED HAS INCREASED FROM APPROXIMATELY 4.9 MILLION WET TONS PER YEAR IN 1973 TO APPROXIMATELY 7.9 MILLION WET TONS IN 1986. THE INCREASE IN VOLUME IS A RESULT OF UPGRADING OF EXISTING WASTEWATER TREATMENT FACILITIES TO COMPLY WITH THE CLEAN WATER ACT. THE DUMPING

VOLUME PEAKED IN 1983 AT 8.3 MILLION WET TONS PER YEAR, AND REMAINED FAIRLY CONSTANT IN VOLUME FROM 1984 THROUGH 1986. OCEAN DUMPING OF SEWAGE SLUDGE CURRENTLY IS LIMITED TO 6 MUNICIPAL SEWERAGE AUTHORITIES IN NEW JERSEY, AND THE CITY OF NEW YORK AND WESTCHESTER/NASSAU COUNTY IN NEW YORK. AT THE END OF 1987, ALL SEWAGE SLUDGE DUMPING AT THE 12 MILE SITE ENDED AND WAS TRANSFERRED TO THE 106 MILE DEEPWATER MUNICIPAL SLUDGE DUMP SITE. THE DUMPING OF THIS SEWAGE SLUDGE IS CURRENTLY GOVERNED BY COURT ORDERS IN LITIGATION INVOLVING NEW YORK CITY. OUR REGION II OFFICE HAS REQUIRED THE DUMPERS TO FILE PERMIT APPLICATIONS IN ORDER TO BRING THEM BACK UNDER A PERMITTING REGIME. THE PERMIT APPLICATIONS HAVE BEEN SUBMITTED AND ARE PRESENTLY UNDERGOING REVIEW, AS DISCUSSED IN THE TESTIMONY OF THE REGION II REGIONAL ADMINISTRATOR, CHRISTOPHER DAGGETT.

WITH REGARD TO OCEAN DUMPING SITE DESIGNATIONS, THE MPRSA AUTHORIZES EPA TO DESIGNATE RECOMMENDED TIMES AND LOCATIONS FOR DUMPING. THE OCEAN DUMPING REGULATIONS SET FORTH FACTORS TO BE CONSIDERED IN THE SITE DESIGNATION PROCESS IN ORDER TO ASSURE THAT THE SITES SELECTED WILL MINIMIZE POTENTIAL DUMPING IMPACTS. IN ESSENCE, THE SITE DESIGNATION PROCESS IS DESIGNED TO SELECT A SITE WHICH IS COMPATIBLE WITH THE CATEGORY OF WASTE TO BE DISPOSED. FOLLOWING SELECTION OF SUCH A SITE, A PERMIT APPLICATION IS REVIEWED TO DETERMINE WHETHER THE MATERIAL SPECIFIED IN THE PERMIT APPLICATION MAY ACTUALLY BE DUMPED AT THE SITE.

THE BULK OF OUR SITE DESIGNATION ACTIVITIES ARE FOR THE DESIGNATION OF DREDGED MATERIAL DISPOSAL SITES FOR THE CORPS OF ENGINEERS UNDER SECTION 103 PERMITS. AS A RESULT OF ENACTMENT OF THE WATER RESOURCES DEVELOPMENT ACT OF 1986 AND NAVY HOMEPORTING ACTIVITIES, WE ANTICIPATE THAT OUR ACTIVITIES RELATED TO DREDGED MATERIAL DISPOSAL WILL INCREASE IN THE FUTURE.

WE COOPERATE CLOSELY WITH THE CORPS OF ENGINEERS IN DESIGNATING DREDGED MATERIAL DISPOSAL SITES. IN 1987 WE ENTERED INTO A MEMORANDUM OF UNDERSTANDING (MOU) WITH THE CORPS OF ENGINEERS TO FACILITATE AND ENHANCE COOPERATIVE EFFORTS BETWEEN OUR AGENCIES. UNDER THE MOU EPA WILL DESIGNATE 21 DREDGED MATERIAL DISPOSAL SITES BY THE END OF FISCAL YEAR 1988 AND AN ADDITIONAL 34 SITES BY THE END OF FISCAL YEAR 1991. IN 1986, WE DELEGATED RESPONSIBILITY FOR DREDGED MATERIAL SITE DESIGNATIONS TO THE EPA REGIONAL OFFICES SO AS TO EXPEDITE THE DESIGNATION PROCESS. IN ORDER TO PROVIDE FOR EFFECTIVE IMPLEMENTATION, THE NATIONAL MOU CALLS ON THE EPA REGIONS AND THEIR CORPS OF ENGINEERS COUNTERPARTS TO ENTER INTO LOCAL MOUs SETTING FORTH SCHEDULES FOR OUR COOPERATIVE SITE DESIGNATION ACTIVITIES. NEGOTIATIONS ON THE LOCAL MOUs ARE WELL UNDERWAY IN ALL REGIONS, AND DRAFT LOCAL MOUs ARE IN VARIOUS STAGES OF PREPARATION AT THIS TIME. THE FIRST SUCH MOUs WERE COMPLETED THIS MONTH BETWEEN OUR EPA REGION VI OFFICE AND THE GALVESTON DISTRICT OF THE CORPS OF ENGINEERS, AND BETWEEN OUR EPA REGION I OFFICE AND THE NEW ENGLAND DIVISION OF THE CORPS.

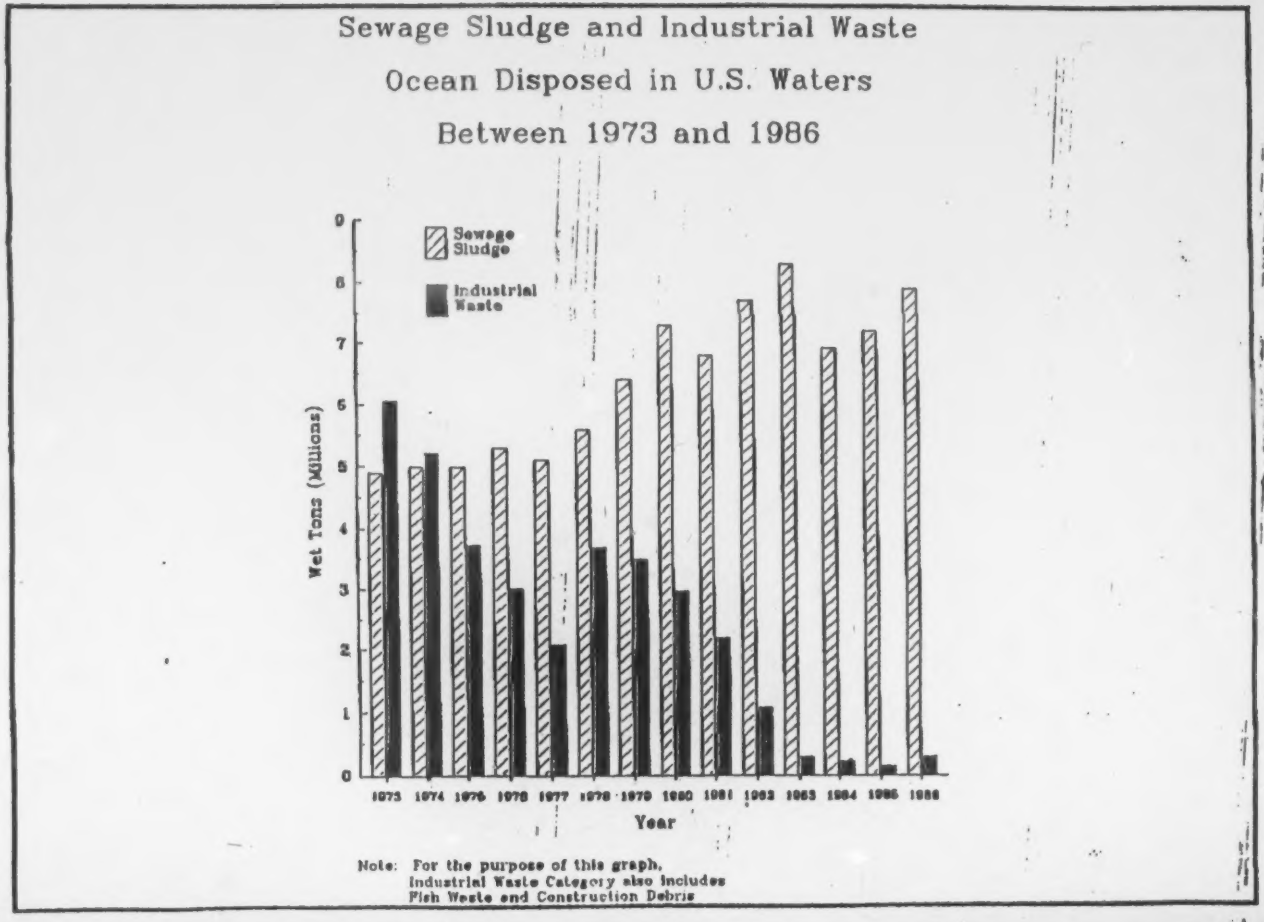
IN ADDITION TO THE PERMITTING AND SITE DESIGNATION ACTIVITIES DESCRIBED ABOVE, SECTION 102 OF THE MPRSA ALSO CHARGES EPA WITH DEVELOPING CRITERIA FOR THE REVIEW OF OCEAN DUMPING PERMIT APPLICATIONS. THE EXISTING OCEAN DUMPING PERMIT REGULATIONS WERE ISSUED IN 1977 AND HAVE BEEN THE FOCUS OF SEVERAL LEGAL CHALLENGES. IN CITY OF NEW YORK V. EPA (543 F. SUPP. 1084), THE COURT FOUND THAT, UNDER THE MPRSA, EPA GENERALLY CANNOT PROHIBIT OCEAN DUMPING SOLELY BECAUSE MATERIALS FAIL THE MARINE IMPACT CRITERIA, AND THAT EPA MUST TAKE INTO CONSIDERATION THE NEED FOR SUCH DUMPING AND THE AVAILABILITY AND IMPACTS OF LAND-BASED ALTERNATIVES. A SECOND LAWSUIT, NATIONAL WILDLIFE FEDERATION V. COSTLE (629 F.2D 118) INVOLVING DREDGED MATERIAL, FOUND THAT WHILE THE MPRSA DOES NOT REQUIRE THAT THE REGULATIONS FOR DREDGED AND NON-DREDGED MATERIAL BE THE SAME, A STATEMENT OF THE BASIS AND PURPOSE FOR THE DIFFERING TREATMENT OF DREDGED MATERIAL MUST ACCOMPANY PROPOSED REGULATIONS. IN ADDITION, SINCE ISSUANCE OF THE EXISTING REGULATIONS, SEVERAL CHANGES HAVE BEEN MADE TO THE STATUTE. WE ARE IN THE PROCESS OF DEVELOPING PROPOSED REGULATIONS TO ADDRESS ALL OF THESE ISSUES.

IN WORKING ON THE PROPOSED REGULATIONS, EPA IS WRESTLING WITH ISSUES INVOLVING THE BALANCING OF RISKS ASSOCIATED WITH MARINE DISPOSAL VERSUS DISPOSAL RISKS IN OTHER MEDIA. EXAMPLES OF SUCH ISSUES WOULD INCLUDE THE RELATIONSHIP OF THE MPRSA TO SUBSEQUENT STATUTES SUCH AS THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), WHICH CAN PROHIBIT OR RESTRICT THE USE OF

LAND-BASED ALTERNATIVES; THE POTENTIAL BENEFITS AND FEASIBILITY OF A WASTE DISPOSAL HIERARCHY; AND THE STRUCTURE AND FRAMEWORK UNDER WHICH LAND-BASED ALTERNATIVES SHOULD BE WEIGHED AND BALANCED WHEN CONSIDERING POTENTIAL OCEAN DUMPING OF MATERIAL FAILING THE MARINE IMPACT CRITERIA.

IN RECENT YEARS, HOWEVER, THERE HAS BEEN A TENDENCY TO AMEND THE ACT FOCUSING ON SPECIFIC NARROW ISSUES. WE CONTINUE TO BELIEVE THAT THE MPRSA IS A FUNDAMENTALLY SOUND STATUTE, AND THAT IT ALREADY PROVIDES AN EFFECTIVE MECHANISM FOR REGULATING OCEAN DUMPING.

THIS CONCLUDES MY WRITTEN TESTIMONY AND I WOULD BE PLEASED TO ANSWER ANY QUESTIONS YOU MIGHT HAVE.


Sewage Sludge and Industrial Waste
Ocean Disposed in U.S. Waters
Between 1973 and 1986
Sewage Sludge
Industrial Waste
Wet Tons (Millions)
0
1
2
3
4
5
6
7
8
1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986
Year
Note: For the purpose of this graph, Industrial Waste Category also includes Fish Waste and Construction Debris

STATEMENT OF

MG H. J. HATCH

DIRECTOR OF CIVIL WORKS

ARMY CORPS OF ENGINEERS

BEFORE THE

ENVIRONMENTAL PROTECTION

AND

SUPERFUND AND ENVIRONMENTAL OVERSIGHT

SUBCOMMITTEES

OF THE

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

FEBRUARY 18, 1988

85-329 O - 88 -- 5

Mr. Chairmen and Members of the Subcommittees:

I am Major General Henry J. Hatch, Director of Civil Works for the U. S. Army Corps of Engineers. With me today are Dr. Bob Engler, Senior Environmental Scientist with our Waterways Experiment Station, Vicksburg, Mississippi, and Mr. David Mathis, Chief of the Disposal Management Branch of my Dredging Division.

We appreciate this opportunity to appear before you to discuss activities of the Department of the Army under Title I of the Marine Protection, Research and Sanctuaries Act, or the Ocean Dumping Act. We are very proud of the way the Corps carries out its dredging responsibilities and welcome the opportunity to tell our story whenever possible. It is in conducting our dredging activities, including those under Title I, that the Corps has evolved into a world leader regarding the assessment of environmental effects of disposal of dredged material both on land and in the water. In testifying before your subcommittees this morning, I hope to be able to describe just how extensive our efforts in this field have been and continue to be.

Your letter of invitation asked that we address six specific areas of interest to the subcommittees. These include:

- An overview of the Corps authority relating to ocean dredged material disposal under Title I;
- The present level of activity under this authority
- Interagency coordination efforts
- FY 88 and FY 89 budget levels for this program;
- Recommendations for improvements to the program or statute
- Our views on the issue of ocean disposal at the 106-mile municipal sludge site.

Title I Authorities

The Corps, acting on behalf of the Secretary of the Army, is responsible under Section 103 of the Ocean Dumping Act for regulating the transportation of dredged material for the purpose of dumping into ocean waters. This responsibility requires that, for each proposed ocean dredged material disposal action, we make an independent assessment of the need for and alternatives to ocean disposal as well as a determination of compliance with EPA's ocean disposal criteria relating to the effects of disposal. These ocean disposal criteria are published at 40 CFR 220-228 and are developed by EPA in close consultation with the Corps of Engineers. In addition, decisions on whether and where to dump are also guided by required compliance with a host of other Federal and state laws. Federal laws include, among others, the National Environmental Policy Act, the Endangered Species Act, the Fish and Wildlife Coordination Act, and the Marine Mammal Protection Act. In addition, the Clean Water Act requires compliance with state water quality standards when disposal occurs within the three-mile territorial sea.

Program Activity Summary

For non-Corps disposal of dredged material, the Corps must decide whether to issue a permit in accordance with EPA's Ocean Disposal Criteria as well as specific standards, procedures, and documentation requirements published at Title 33 CFR 320-330. For disposal associated with Corps activities, the Corps uses the same standards and provides similar documentary evidence in the public record as to anticipated impacts, but does not issue itself a permit, per se. A signed statement of findings serves as the equivalent of a permit.

During the period 1976-1986, the Corps removed, on the average, about 300 million cubic yards (mcy) of dredged material annually in fulfilling our responsibility to maintain a safe, reliable Federal navigation system within the U. S. This Federal system presently encompasses over ,000 linear miles of Congressionally authorized navigation channels, serving 41 of the 50 states.

In specific regard to ocean dredged material disposal activities, over the last ten years, an average of about 55 mcy of dredged material, or about 20 percent of the total national average, has been disposed in ocean waters each year. We understand from the recent Office of Technology Assessment (OTA) report on "Wastes in the Marine Environment" that dredged materials presently account for 80 to 90 percent by volume of the total annual U. S. ocean disposal activity.

Over 95 percent of our annual ocean dredged material disposal volume is derived from Federal navigation projects maintained by the Corps. On the average, about 70 percent of this annual volume is disposed of within waters of the Gulf of Mexico, with the remainder about equally distributed between the Atlantic and Pacific coasts. On a national basis, well over 50 percent of these sediments are characterized as predominantly fine to medium sand. These materials typically originate from maintenance of ocean approach channels to inlets, bays and estuaries and are typically environmentally indistinguishable from the adjacent nearshore sediments.

The Corps issues an average of 35 to 40 ocean dredged material disposal permits each year under our Section 103 regulatory authority. Typically, well over 50 percent of this yardage regulated by the Corps is dredged by other Federal agencies; primarily the Department of the Navy.

At present, we have 123 active ocean dredged material disposal sites serving over 100 Federal navigation projects as well as these permitted activities. Sixteen of these sites have been established by the Corps using its Section 103 authority when use of an EPA designated site is not feasible. This is a project-specific site selection authority, undertaken in consultation with EPA and addresses the same environmental factors and criteria required of EPA under its Section 102 site designation authority.

For Calendar Year 1988, we anticipate a significant increase in the annual volume of dredged material requiring ocean disposal. This is due primarily to two factors. The first is a significant new work dredging requirement associated with enactment of the 1986 Water Resources Development Act, or PL 99-662. This Act authorized over $15 billion for water-related development, including 35 deep-draft navigation projects. Additional volumes are also resulting from dredging associated with the Navy's Homeport initiative which includes ports on each U. S. Coast. Approximate ocean disposal activity in CY 1987 was 53 mcy with a projected CY 1988 volume of almost 90 mcy.

Due to phased construction for most of the newly authorized deep-draft navigation projects, we anticipate an increased level of ocean dredged material disposal activity for at least the next five to eight years. Longer-term trends in ocean disposal activity are difficult to predict at present due to a lack of site-specific experience in maintenance dredging requirements for these deepened projects. We do note, however, that several of the project authorizations in PL 99-662 specifically require ocean disposal of all new work as well as all subsequent maintenance dredged material. We also anticipate a more frequent maintenance dredging requirement for several of our coastal navigation projects serving the Navy's homeports.

Research Related to Dredged Material Disposal

We in the Corps take very seriously our assigned dredged material regulatory responsibilities under Title I as well as under similar environmental statutes. Since the mid-1970's, the Corps has funded over $100 million in research evaluating the effects of a wide range of dredged material disposal alternatives. By the end of FY 88, we will have completed the necessary field surveys and environmental assessments for each of our 107 active ocean disposal sites to support timely EPA decisions on the final designation of each for continuing use. We have been an active participant in the annual Scientific and Policy meetings of the London Dumping Convention (LDC) since its inception. Through the LDC we exchange our research, regulatory, and ocean site management experiences with the 61-member nations. The Office of the Assistant Secretary of the Army for Civil Works has frequently emphasized in previous Congressional testimony on ocean dumping issues, our continuing high research priority on the identification and evaluation of appropriate, innovative disposal alternatives for dredged material. Certainly in doing so, our intent is to provide the decisionmakers with the best possible technical data and information on which to base their selection of the least costly, environmentally acceptable disposal alternative for any proposed disposal action.

At the Tenth Consultative Meeting of the LDC in October 1986 unanimous approval was given to a unique and separate set of technical guidelines in the LDC Annexes for ocean dredged material disposal. These new guidelines represent almost six years of detailed technical development by the LDC's Scientific Group. They are intended to reflect the international scientific

community's recognition of the unique technical characteristics, research base and availability of disposal management techniques for dredged material. These guidelines clearly separate the technical regulation of dredged material from sewage sludge and industrial wastes and refuge. These guidelines also reinforce our domestic approach of biological or "effects-based" test and evaluation procedures as the principal test for determining environmental acceptability of dredged materials for ocean disposal. Such an approach is costly relative to other potential approaches such as numerical sediment criteria. However, this approach is recognized by the international scientific community as the best available technology to ensure adequate environmental safeguards while simultaneously minimizing either over-regulation or under-regulation of ocean dredged material disposal activities.

Our existing technical implementation guidance for the ocean disposal program was jointly published with EPA in 1978. This technical guidance, as well as similar guidance developed for our 404 Program, was based in large part on the results of a 5-year, $35 million Dredged Material Research Program (DMRP), authorized by Congress in 1970 under P.L. 91-611. The DMRP was managed by the Corps Waterways Experiment Station and was sucessfully completed in 1978.

In 1987, the Corps and EPA completed a joint five year, multi-million dollar R&D program aimed at a thorough evaluation of the most promising, existing biological assessment protocols for contaminated dredged material disposal evaluations. This program evaluated the reproducibility of each test in the laboratory and, most importantly, the ability of each to accurately predict impacts in the field. This Field Verification Program was unique in other ways in that it allowed for a detailed impact analysis of three different dredged material disposal alternatives (upland and open water disposal and wetland

construction) within the same waterbody using the same contaminated material. A joint Corps/EPA Technical Committee recently has been tasked with incorporating the findings of this Field Verification Program as well as the recent LDC guidance on ocean dredged material disposal into a revised joint technical implementation guidance document for ocean dredged material disposal evaluations within the U. S.

Interagency Coordination

I previously mentioned the 1986 Water Resources Development Act and its probable impact on our ocean disposal program. The potential overall effect of this law, if each of the projects is eventually constructed to fully authorized channel dimensions, will be to generate up to a billion cubic yards of new dredged material requiring disposal. This will require that we bring the full extent of our technical knowledge to bear on this challenge as well as a great deal of innovation on the part of all concerned in the review and construction of these projects.

In most cases, we do not anticipate any significant sediment contamination problems with the deep draft projects as we are dealing primarily with the virgin soil layer beneath the maintenance dredging profile. Nevertheless, because of the large sediment volumes involved in the deepening projects, our environmental efforts will be directed toward identifying appropriate disposal alternatives to minimize these impacts. We view much of this material as a resource which, whenever possible, should be used productively as opposed to treating it merely as a waste requiring disposal. With that perspective, we are exploring a number of innovative and worthwhile alternatives. These include constructing up to 30,000 acres of new wetlands in Louisiana using new work dredged material from the authorized Mississippi River deep-draft project and creation of nearshore feeder berms for beach replenishment and offshore stable berms to

mitigate storms waves and their devastating beach erosion impacts. The latter two concepts are presently being evaluated as a pilot program in conjunction with the Mobile Harbor deep-draft navigation project.

We have also worked closely with EPA, the National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service in holding two national interagency workshops on beneficial uses of dredged material; one covering coastal application and one addressing applications within inland waterways. In addition, under a 1986 Army/NMFS MOU, we are now in the second year of a three year study to evaluate the extent to which our two agencies can proceed under existing authorities to create and rehabilitate coastal fisheries habitat. The underlying premise is that instead of continuing to resolve dredged material disposal problems and coastal habitat loss problems separately as we have done for the most part in the past, perhaps the better approach is to define to what extent the two issues can be resolved collectively.

One final area of interagency coordination effort of interest to these subcommittees, is a recently signed Army/EPA MOU. This MOU is intended to establish firm schedules for completing the EPA final designation actions on many of our remaining historically-used ocean disposal sites. Most of these sites have had EPA interim designations since 1977. This MOU reflects the high priority both agencies have placed on completing these actions through a well coordinated, shared resource approach. To date, 26 of the 107 active EPA designated sites have received final designation and, as the MOU intended, this program is back on track.

We estimate that 3 to 5 percent of the sediments dredged each year from coastal Federal navigation projects require special handling due to contamination. Over the years we have

developed an extensive data base on appropriate testing procedures and disposal management alternatives for such sediments. We have also acquired a great deal of data and information on operational experiences in the removal and management of such sediments through frequent technology exchange MOU's with the Dutch and Japanese. In 1983, we recognized the need to synthesize this extensive research base into a logical and technically-based framework and protocol in order to most effectively manage these sediments. This protocol is now undergoing field verification and initial refinement at several Corps projects as well as at EPA's New Bedford Superfund dredging project. The initial reaction to this protocol by the international scientific and regulatory community has been quite favorable. In fact, several countries have expressed considerable interest in incorporating this protocol into their regulatory programs. We anticipate a continuing close cooperative effort with EPA in further verification and refinement of this protocol as we gain practical experience in full-scale field dredging and disposal operations involving highly contaminated sediments.

Program Funds

Our overall FY 88 budget for the national dredging program is approximately $530 million. Our annual budget request includes identified funds for each individual navigation project requiring dredging during the Fiscal Year. In the specific case of projects utilizing ocean disposal, this budget request includes project-specific environmental compliance costs such as required sediment testing, any site designation study requirements and project-specific site management and monitoring requirements. Regarding the FY 89 budget, the President is not scheduled to release the budget until Noon today. Therefore, it is inappropriate for me to discuss budget amounts at this time. However, I will be happy to provide that information for the

record.

106-Mile Municipal Sludge Site

As to the issue of the 106-mile site, we have no direct authority or regulatory responsibility in this area and will defer to EPA to provide the Administration's views on this issue.

Summary

In closing, Mr. Chairmen, we feel that our ocean dredged material program is working well. This is due in large part to the wealth of technical data now available in this area, the collective Corps/EPA experiences over the last decade in administering this program, and a willingness on the part of both EPA and the Corps for close and continuing coordination.

Our testimony clearly reflects our management philosophy that ocean dredged material disposal activities must be viewed in the much broader perspective of a coastal dredged material disposal management strategy with equal consideration of all practicable alternatives. Such an approach has the full encouragement of the LDC as well as the strong endorsement by OTA in its 1987 report on Wastes in the Marine Environment. The Department of the Army believes that, in specific regard to dredged material disposal, the Ocean Dumping Act now provides, and should continue to provide for well-reasoned consideration of all practicable alternatives for the disposal of dredged material. We are working closely with EPA to ensure that implementing regulations accomplish this.

STATEMENT OF
CHRISTOPHER J. DAGGETT
REGIONAL ADMINISTRATOR, REGION 2
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
AND THE
SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

February 18, 1988

Good morning, I am Christopher J. Daggett, Regional Administrator for Region 2 of the U.S. Environmental Protection Agency. Our region includes the States of New York and New Jersey, Puerto Rico and the U.S. Virgin Islands. I am pleased to be here today and I thank the Subcommittees for the opportunity to discuss our region's perspective on the issue of ocean disposal of municipal sewage sludge.

My testimony will review briefly the recent history of the disposal of municipal sludge in the ocean in Region 2, including a discussion of the phase-out of the former 12-mile disposal site, the status of current dumping at the 106-mile site and our review of permit applications for that site, our program to monitor the 106-mile site, and the status of the Ocean Dumping Surveillance System.

Phase-Out of the 12-Mile Site

The 12-mile sewage sludge disposal site had been in use since 1924. In recent years, it was used by nine dumpers--the City of New York and Westchester and Nassau Counties in New York, and six sewerage authorities in New Jersey. The volume of material dumped was about 8 million wet tons in 1987.

EPA attempted to halt ocean disposal of sludge by the end of 1981 under the terms of the Marine Protection, Research, and Sanctuaries Act (MPRSA). However, in an action brought by New York City and later duplicated in New Jersey, the Courts ruled that EPA could not halt the dumping without seeking detailed and comprehensive information on alternative disposal methods and their impacts, in order to evaluate the impacts and availability of land-based alternatives. Since that decision, the sludge dumpers have been operating under Court Order rather than MPRSA permits.

As a result of scientific research, environmental monitoring, and public participation, EPA announced, in May, 1984, its decision to designate the 106-mile site for sewage sludge disposal, and its tentative determination to deny the petitions to redesignate the 12-mile site. In April of 1985, we formally denied the petitions to redesignate the 12-Mile Site and subsequently established with the dumpers Court-ordered schedules for moving their disposal operations to the Deepwater Municipal Sewage Dump site--the 106-Mile Site--by the end of 1987. The

last load of sludge--from Middlesex County Sewerage Authority in New Jersey--went to the 12-Mile Site this past New Year's Eve. As of January 1, 1988, all disposal is now taking place at the 106-Mile Site under the existing Court Orders.

We believe the 106-Mile Site is preferable to the 12-Mile Site. This area was selected because of its depth, distance from shoreline, and its capacity to disperse industrial wastes and municipal sludge. Moreover, it does not include significant commercial or recreational fishery resources; it is outside of shipping lanes; it is remote from coastal areas; and it is off the edge of the Continental Shelf (a preference stated explicitly in MPRSA).

Status of 106-Mile Site

In July of 1986, EPA notified the nine sludge generators that they would be required to submit complete MPRSA permit applications for use of the 106-Mile Site. We requested that these applications be submitted no later than January of 1987. The existing Court Orders control the disposal operations until such time as EPA has received and acted upon complete permit applications.

We informed the applicants that, under the Act, ocean dumping permits may not be issued unless the applicant can demonstrate that there are no alternative land-based disposal methods available that are technically feasible, economically reasonable and likely to have less adverse impact on the total environment and human health than ocean disposal.

We received applications from the New York sludge generators on January 15, 1987; however the six New Jersey authorities requested an additional six months to submit applications that would include a thorough evaluation of all possible disposal alternatives on an authority-by-authority basis. On August 1 of 1987, the New Jersey Authorities submitted one application on behalf of all six.

In November, Region 2 completed its review of the permit applications; we found them to be incomplete in their evaluation of alternatives. We sent letters to the applicants that read, in part:

> "Federal regulations require that a permittee continue to research all feasible alternatives to ocean dumping, including practicable improvements in the process technology to reduce adverse sludge characteristics and alternative locations or methods for sludge disposal or recycling before a permit can be issued."

The applications we had received showed that studies for alternate sludge disposal methods had been suspended in 1981. Our letter continued:

> "Therefore, your application does not contain a current or viable analysis of land-based methods and technologies of sewage sludge disposal as they exist today."

We gave the applicants until January 19 of this year to submit this additional information. The applicants did submit additional information on incineration, landfilling and/or composting on January 19, and the Region is in the process of reviewing it.

Monitoring at the 106-Mile Site

As part of our site management responsibilities, EPA has prepared a monitoring plan for the 106-Mile Site. Its objectives are to assess the actual and potential impacts of sludge disposal on the marine environment at the site, and to assess compliance with permit conditions. Data collected will be used in making decisions regarding continued designation of the site, the status of disposal permits, and the design of future monitoring programs.

Much information on chemical and physical characteristics and baseline conditions at the 106-Mile Site already exists from studies performed during the past decade. Between 1984 and 1986, for example, EPA conducted five baseline studies at the site. These data were used to develop the current monitoring plan and will be used as the baseline against which new results will be compared.

In August of 1987, EPA conducted a survey at the 106-Mile Site to track the dispersion and settling of the sludge plumes. Four ocean dumping events were monitored. Preliminary findings were that the plumes are extensively mixed in the upper 20 meters of the water column while being transported horizontally by strong currents. The plumes were often tracked well outside the designated boundaries of the dump site, for a period of up to eight hours, or ten miles outside of the site's boundaries. Water quality impacts are still being analyzed. A second

plume tracking survey is scheduled for later this month to compare winter and summer oceanographic conditions.

Designation of this site expires in March of 1991. Redesignation will depend, in part, on whether there is a continuing need and on the results of this monitoring. An advisory committee comprised of EPA, the National Oceanographic and Atmospheric Administration (NOAA), state agencies, the sludge generators, and other interested parties is being formed to evaluate the data on a continuing basis and make recommendations to EPA. If necessary, use of the site can be modified or suspended.

Ocean Dumping Surveillance System

Another aspect of the use of the 106-Mile Site is the development and installation by the Coast Guard of an Ocean Dumping Surveillance System (ODSS). In 1981, EPA stated that all vessels transporting sludge to this site must have the ODSS installed and operating when available. In November, 1987 EPA, working in cooperation with the Coast Guard, notified the dumpers that the ODSS must be installed by May 15, 1988. Vessels not outfitted will not be authorized to transport sludge unless "unforeseen events" arise.

The ODSS devices consist of an onboard computer that communicates with a computer at the Coast Guard station on Governors Island. The onboard computer, assisted by the Loran C navigation system, reveals latitude and longitude, thus tracking the vessel location. Sensors in the hull detect when the dumping operation takes place.

The goal is to outfit 12 of the 21 current sludge vessels by May 15--enough capacity to handle all the sludge for a time. This is an ambitious timeframe. Due to contractual arrangements, the number of units available to the Coast Guard for installation prior to May 15 will be limited. Those vessels that do not have installations by May 15 will be required to have them as soon as the Coast Guard has the ODSS units available.

The Coast Guard is financing the construction of these devices at a cost of approximately $25,000 per unit. The sludge permittees are responsible for making dry-docking arrangements, at a cost of $30,000-$35,000 per vessel.

Post-1991 Disposal

Finally, you asked that I comment on proposals for prohibiting the disposal of sewage sludge in the ocean after 1991.

The need for ocean disposal of sewage sludge after 1991 will be evaluated in the context of the Agency's current policy:

(1) We will, as an overall principle, protect the oceans from significant adverse effects of waste disposal. We will particularly assure that they are not used for "cheap" waste disposal as a matter of short run economic considerations alone.

(2) In any specific case we will allow ocean disposal of a waste only if the applicant can show that no practicable alternatives are available that have less impact on the total environment. EPA will apply a rule of reason in determining practicability.

(3) For the long run, we will actively encourage environmentally beneficial apperoaches such as waste minimization, recycling, or reuse.

Thank you for your attention. I will be pleased to address any questions you may have at this time.

§§§

United States
Environmental Protection
Agency

External Affairs (A-100AE)
Washington DC 20460

EPA

Legislative Analysis

APR 20 1988

Honorable Frank R. Lautenberg
Chairman, Subcommittee on Superfund
and Environmental Oversight
Committee on Environment and Public
Works
United States Senate
Washington, D. C. 20510-6175

Dear Chairman Lautenberg:

Enclosed, for insertion is the hearing record, are EPA's responses to the questions which you addressed to Christopher Daggett following the February 18, 1988 hearing concerning ocean dumping.

Please feel free to contact us if we can be of any further assistance.

Sincerely yours,

Virginia L. Gibbons for

A. Henry Schilling
Director
Office of Legislative Analysis

Enclosure

ANSWERS TO QUESTIONS FROM CHAIRMAN LAUTENBERG

SLUDGE DUMPING

QUESTION A1:

Your testimony says that you are reviewing the revised ocean dumping applications for sludge dumping. What is the status of your review?

ANSWER A1:

All four applications, covering nine municipalities that ocean dump sewage sludge, were reviewed and found to be deficient. The greatest deficiency in each lay in the analysis of land based alternative sludge disposal methods. EPA sent letters to each municipality on November 16, 1987, advising them of the deficiencies. EPA Region II has met with each of them since that time. In response, the municipalities have submitted additional materials to EPA and more submissions are expected in April, after which EPA will complete its review of the applications.

QUESTION A2:

When do you expect to make a decision on the applications?

ANSWER A2:

As stated in our answer to question A1, we are awaiting the submittal of additional information. Until EPA reviews the information and determines that the applications are complete, we are unable to tell you when we would expect to make either a tentative or final decision on the applications.

QUESTION B1:

EPA has begun monitoring sludge dumping at the 106-mile site. Your testimony says that EPA tracked sludge plumes up to 10 miles outside the dumpsite area. EPA also conducted a second plume tracking study in February. What direction outside the dumpsite boundary did you find the plumes?

ANSWER B1:

In August 1987, EPA conducted a sludge plume tracking survey at the 106-Mile Site in support of EPA's 106-Mile Site Monitoring Program. The objectives of the survey were to employ a variety of plume-tracking methods to 1) assess permit compliance within and outside the site, and 2) address the movement, dilution, and settling of sewage sludge as a sludge plume is transported towards and beyond the site boundaries.

The results of the August 1987 survey indicated that the near-surface currents at the dumpsite were 1) very strong (3/4 to 1 1/2 knots); 2) directed toward the east, which, based upon historical data, is opposite the typical direction; and 3) surprisingly steady. The strong eastward flow extended from the surface to a depth of roughly 400m.

The sludge plumes created by the various barges were similar in most characteristics; each plume extended linearly for roughly 10 to 20 nautical miles, and a dark brown surface expression was easily distinguishable. This surface expression was evident to both shipboard observer and aerial photographers for 3 to 5 hours, depending upon barge discharge rate, and sea and wind conditions.

The horizontal transport of the plume was primarily governed by the current feature that extended from the surface to a depth of roughly 400 m. As a result, the sludge plume was observed to move generally eastward in most of the plumes surveyed.

Upon discharge the plume width was between 20 and 40 meters, depending upon the barge's discharge rate and configuration. After a few hours, the surface plume had widened to 100 to 200 meters, but the plume was slowly sinking and spreading laterally because of the current. The profiling operations revealed that during the first hour the plume was confined to the upper 5 to 10 meters. As time passed, the plume could be seen penetrating to greater depths, but there was little evidence that the sludge penetrated beyond 20 meters, even after eight hours.

EPA plans to use the results of the plume tracking study in order to manage future disposal operations at the 106-Mile Site.

QUESTION B2:

How many square miles of ocean are affected by sludge dumping with these sludge plumes outside the dumpsite?

ANSWER B2:

EPA cannot identify the number of square miles of ocean outside the dumpsite affected by sludge dumping. The purpose of the survey was to monitor conditions within the dumpsite.

Results from the August 1987 survey indicated that sludge plumes can be transported outside the site before all constituents are diluted to levels below the Water Quality Criteria. Although the conditions at the site during the survey were dispersive, measured concentrations of two sludge constituents, copper and lead, exceeded water quality criteria four hours after disposal. Exceedences were also predicted for mercury and nickel.

Although sludge plumes could not be tracked after disposal for longer than nine hours or approximately ten miles outside the dumpsite, calculations of dispersion indicated that all measured sludge constituents would reach ambient levels with twenty-four hours.

QUESTION B3:

What did you learn from your recent plume tracking survey?

ANSWER B3:

The results of the 5 day (March 1-5, 1988) survey to the 106-Mile Site are unavailable, however the following oceanograhic conditions were observed:

- The water column structure at the site was typical of slope water conditions during winter, with a mixed layer extending to a depth of 70 meters.
- Near-surface currents at the site were weak (ca. 1/4 knot) and generally directed toward the north, in contrast to the strong (ca. 1 knot) currents observed during the August 1987 survey.
- Environmental conditions were not favorable for active, near-surface mixing because winds and sea were light, and currents were weak. Except for the deeper mixed layer in March, mixing conditions were more intense during the August 1987 survey on account of the strong current shear.

QUESTION C1:

You conclude your testimony by saying that you will encourage environmentally beneficial approaches for sludge disposal. How do you intend to encourage these approaches?

ANSWER C1:

We can encourage these approaches through the permitting process and by offering technical assistance as the applicants explore alternatives to ocean dumping.

There is a necessity for multimedia and multidisciplinary assessments of waste disposal practices. The steps in the multimedia selection process are 1) the identification of various air, land, and ocean options and the subsequent selection of feasible alternatives; 2) an assessment involving the selected alternatives; and 3) the choice of the option. Each of these steps toward selecting an option may or may not be well-executed by the waste-management community depending on the level of information available and utilized in the selection process.

DREDGED MATERIAL DISPOSAL

QUESTION A1:

The Water Resources Development Act of 1986 requires EPA to designate a new dredged material dumpsite at lesst 20 miles from the coast by December 1989. What is your plan for designating this new site?

ANSWER A1:

The following schedule has been developed to accomplish the site designation for a new dredged material dumpsite:

°	13 months	Information Gathering/Site Studies (start preliminary Environmental Impact Statement (EIS))
°	10 months	Complete Preliminary and Draft EIS/Proposed Rule for Site Designation
°	13 months	Complete Final EIS/Final Rule
	36 months	

With work on the information gathering and site studies beginning in March 1988, EPA would complete the site surveys, a preliminary EIS, a draft EIS, and a proposed rule to designate the Mud Dump Site by February 1990.

The Final EIS and site designation could occur within another thirteen months or by late spring of 1991. However, since the New York Bight area is of high environmental concern and public visibility, the completion date of final designation of the site depends to a qreat extent on information collected from the site surveys and the comments received from various sources.

QUESTION A2:

Will you designate the new dumpsite by the deadline?

ANSWER A2:

No, we will not meet the deadline.

QUESTION A3:

If not, why won't you meet the deadline and when will you designate the site?

ANSWER A3:

No resources were provided to EPA for designating a new dredged material site in the New York Bight in FY 1987. Because EPA's FY 1988 appropriation was not passed until December 1987, there was further delay in the start of the site designation work by EPA.

Resources to begin this project were not made available until December of 1987. Based on EPA's site designation experience, the technical and scientific studies and analysis necessary to identify, evaluate, and designate an environmentally suitable alternative dump site will take approximately three years to complete. We expect to designate the site in Spring of 1991.

WOOD INCINERATION

QUESTION A1:

What are your plans for final designation of the wood incineration site?

ANSWER A1:

Region II is currently finalizing the draft environmental impact statement (EIS) and Proposed Rule and expects to issue these documents this summer. Both documents will be made available to the public and a public hearing will be held. After review of all the comments, Region II will prepare a final EIS and Final Rule.

QUESTION A2:

If the site is finally designated, will there be any limits on where wood can be brought from for incineration?

ANSWER A2:

If the site receives final designation, only wood which comes from the New York Harbor and its environs will be permitted to be burned at the woodburning site.

QUESTION A3:

Are there any other wood incineration sites in the U.S.?

ANSWER A3:

No.

QUESTION D1:

Do you place any conditions on existing woodburning permits?

ANSWER D1:

In the permits issued to the COE and the City of New York in 1986, the only active permits this past year, we placed the following permit conditions:

- Only the material described in the application is permitted to be burned.
- The permittee must submit quarterly reports of volumes transported for each project under their permit.
- Only vessels authorized by EPA and the Coast Guard may be used to burn wood at sea.
- Barges utilized under each permit must have six foot high stanchions along the sides which must be set back a minimum of four feet along the perimeter of the deck.
- The Corps of Engineers was required to conduct an engineering study to determine whether the present barge design is capable of containing its designated load without resulting in the inadvertent discharge of wooden debris enroute to and at the burn site.
- The permit specifies that the barge must be loaded and precautionary measures implemented to ensure no wood is disposed of in the water at the loading site.
- Transport cannot commence unless marine weather forecast indicate that wind directions during the projected period of incineration will not be onshore.
- The entire transport from the site of departure to the burn site be conducted during daylight hours.
- Areas specified in the permit must be avoided due to a potential impact on the commercial and recreational fisheries.
- No more than 3500 tons of materials may be burned at the site at any given time. The annual cap of material which may be burned by all permittees is 119,000 tons per calendar year.

- No more than one barge may burn at the site at any given time.

- The waste transporter may not dump into the ocean either the waste materials prior to burning, or any residual materials after burning. Ashes shall be returned for appropriate land-based disposal.

- The waste transporter may not leave the burn site until there are no longer any visible flames on the burn barge. Upon completion of the burn, the barge must proceed to the wetdown site delineated in the permit to perform a pre-cautionary wetdown of the barge.

- The permittee must provide a third vessel to perform twenty-four hour a day surveillance of the entire burning operation.

- A waste characterization analysis must be submitted to and approved by EPA to determine if the wood waste is suitable for ocean burning.

- Should EPA deem it necessary, the permittees must participate in implementing an EPA approved monitoring program of the impact of the permitted waste disposal on the burn site and wetdown site.

New permits issued on March 22, 1988 include the following additional provisions:

- No burning may occur between Memorial Day and Labor Day.

- An independent, EPA approved shiprider must accompany all woodburning operations and submit surveillance reports to EPA upon completion of each burn operation.

- Barges utilized under each permit must have eight foot stanchions along their sides, stern, and bow which must be set back a minimum of four feet along the sides and stern and a minimum of 10% of the barge length on the bow and braced with supporting beams. Heavy duty chain link fencing and two horizontal rails, able to withstand the heat generated by the burn, must be stretched around side and stern stanchions to prevent wood from falling off the barge.

QUESTION D2:

Do you require that all operations are monitored to ensure proper operations?

ANSWER D2:

The permits issued for woodburning at-sea require two forms of monitoring. First, a third vessel must be provided by the permittee to provide twenty-four hour surveillance of all woodburning operations. Second, an independent shiprider is required to accompany each woodburning operation and prepare a surveillance report detailing any cases of non-compliance with the permit for each woodburning operation. The Coast Guard also performs a pre-departure inspection of each barge and notifies EPA in the event of a violation. Furthermore, in February 1987, EPA and the New Jersey Department of Environmental Protection (NJDEP) entered into a Memorandum of Understanding which formalized the agreement that selected NJDEP personnel shall act as deputies for the EPA in the surveillance of woodburning operations. Since February 1987, the NJDEP has provided surveillance for woodburning operations. The NJDEP will provide EPA with surveillance reports after the completion of each burn.

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Testimony on the Ocean Dumping of Sewage Sludge

for the

Senate Subcommittee on Superfund

and Environmental Oversight

and the

Subcommittee on Environmental

Pollution Control

February 18, 1988

85-329 O - 88 -- 6

My name is Sheldon Lipke, Superintendent of Plant Operations for the Passaic Valley Sewerage Commissioners. On behalf of the Commissioners and our Executive Director, Carmine T. Perrapato, I would like to thank you for the opportunity to share some of our thoughts about sewage sludge disposal with you.

Located in Newark, N.J., the PVSC operates the fifth largest wastewater treatment plant in the U.S.. We serve approximately 1.5 million people and 350 major industrial plants in 35 cities and towns in Northern New Jersey, including Newark, Jersey City, Paterson, and Passaic (see attachment I). Our industrial users are paper recyclers, pharmaceutical manufacturing, a brewery, chemical manufacturing, electroplaters, electronics manufacturing, and textile dyers. They contribute 55% of the conventional pollutants entering the plant. PVSC contributes 16.3% of the sludge dumped at the 106 mile site (see attachment II).

We believe that there is no scientific evidence to show that the ocean dumping of sewage sludge is more harmful to the environment than other methods of sludge disposal. However, rather than debate the scientific merits of ocean disposal, we would like to speak about the practicality of ending ocean dumping by 1991.

PVSC has implemented a pretreatment program to control the discharges from industries covered by EPA categorical standards. Our sludge is rated Class C by the New Jersey Department of Environmental Protection. Therefore, the only land-based sludge alternative avaiable to us is incineration.

In 1977, when it appeared that ocean dumping would end in 1981, PVSC attempted to secure air pollution control permits from the EPA and NJDEP for a sludge incinerator. In our last submittal to the agencies in 1981, we proposed air pollution control devices which would be considered state-of-the-art even today. We were never granted a permit for an incinerator, and therefore did not move forward on the project.

In the intervening years, we met with many vendors of innovative sludge treatment processes in order to find a process which could be permitted and implemented to end ocean dumping. Most of these processes were experimental, and none could guarantee that they would work.

When the 12 mile dumpsite was closed, we negotiated a schedule with EPA to move to the 106 mile site. As of January 1 of this year, all of our sludge is being disposed of at the 106 mile site. We are currently in the process of applying for a special Ocean Dumping Permit to allow us to continue using the 106 mile disposal site.

The NJDEP has proposed a modification to our discharge permit that would have us start planning for a land-based alternative to ocean dumping. Of all the ocean dumping Authorities, we believe we have done the most work towards finding a land-based alternative. In our case, sludge incineration with advanced air pollution control equipment is the only practical method of land-based sludge disposal.

As part of the comments we submitted to NJDEP on the permit modification, we prepared cost estimates and a timetable for implementing a sludge incinerator at PVSC.

The schedule consists of three major phases (see attachment III). The first phase is the preliminary design of the incinerators and the submission of air pollution control permits. This task is projected to take 2 1/4 years.

Based upon our experience with our 1981 application for air pollution control permits, we believe that additional pretreatment beyond the categorical standards will be required to permit an incinerator. The next phase therefore is to promulgate local pretreatment limits which will be based upon the results of air dispersion modeling done during phase I. 4 1/2 years will be required to design and issue local limits and for the industries to design and install the equipment needed to meet the stricter local pretreatment limits. Once the industries come into compliance with the local pretreatment limits, the NJDEP can issue a permit to construct the incinerator.

The last phase will consist of the design and construction of the incinerators. This phase will last for 5 years and will be completed by late 2001. The schedule is based upon the assumption that no litigation will result from the siting of the incinerator on the plant site in Newark or for any other reasons.

We believe that our schedule accurately reflects the many steps necessary to construct a major facility that will meet the stringent requirements of the NJDEP's air pollution regulations. Should Congress decide that a halt in ocean dumping of sludge is in the national interest, we respectfully recommend that the EPA be given the responsibility of formulating and enforcing a rational, realistic program that would lead to viable land-based sludge disposal alternative.

Testimony on Ocean Dumping
Con't Page 3

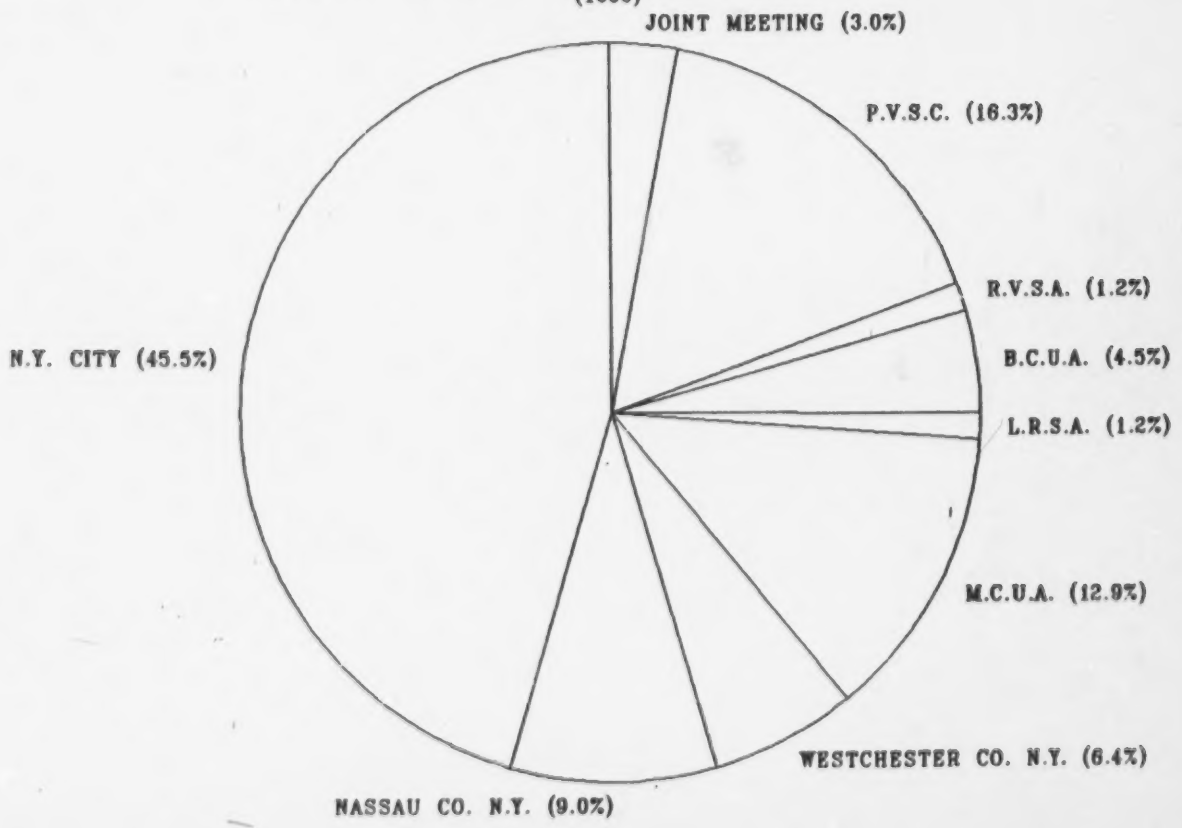
We estimate that the cost of halting ocean dumping will increase our budget by $18,000,000 per year. This represents a 32% increase in our total budget. Of this amount, $13 million will be for debt service on the $140,000,000 capital costs of sludge facilities and $5 million will be Operations and Maintenance costs. Should Federal grant monies be made available to us, the annual cost would drop from $18 million to $12 million per year.

The Passaic Valley Sewerage Commissioners have been subject to changes in the way the Federal and State governments view the different sludge disposal alternatives. If the NJDEP had allowed us to go forward with our incinerator project in 1981, we would have been eligible for substantial Federal grant funds. Now, seven years later, we are faced with constructing basically the same facilities, but this time without <u>any</u> Federal or State aid. We believe that it is only fair that the Federal and State governments provide us with funds to help pay for the additional facilities required by the change from ocean disposal to a land-based alternative.

Passaic Valley
Sewerage Commissioners
SERVICE AREA
ATTACHMENT I
MAHWAH
RAMSEY
UPPER SADDLE RIVER
ALLENDALE
SADDLE RIVER
WALDWICK
WYCKOFF
FRANKLIN LAKES
HOHOKUS
RIDGEWOOD
BERGEN
PARAMUS
PASSAIC
GLEN ROCK
FAIR LAWN
PATERSON
EAST PATERSON
LODI
LITTLE FALLS
CLIFTON
PASSAIC
CEDAR GROVE
VERONA
NUTLEY
WEST ORANGE
MILLBURN
SECAUCUS
NORTH BERGEN
GUTTENBERG
WEST NEW YORK
WEEHAWKEN
UNION CITY
HOBOKEN
EAST ORANGE
BELLEVILLE
NEWARK
HUDSON
IRVINGTON
BAYONNE
JERSEY CITY
KEARNY
N
OUTLINE OF PASSAIC RIVER DRAINAGE BASIN BETWEEN GREAT FALLS AND NEWARK BAY
SCALE IN MILES

SLUDGE DUMPED AT THE 106 MILE SITE

(1986)



ATTACHMENT II

Attachment III

Phase		Date
Phase I	Issue Requests for Proposals (RFP) for Engineering services for preliminary design (201 Step 1) for a Review of Sludge Treatment Processes. The present sludge processing and dewatering trains were selected in 1973. These processes may be obsolete and new processes may be more economical. If the same processes are selected, a review of sizing and sludge quantities is necessary as these sludge facilities were designed before the secondary facilities were in operation. This study would determine the projected quantities of sludge as well as the characteristics of the sludge cake.	March 10, 1988
	Award Contract and appropriate Funds	June 12, 1988
	Completion of Contract	March 1989
	Complete PVSC review of Contract	April 1989
	Issue RFP for Engineering Services for Inventory and Strategy Documents, Alternatives Document, and Selection Document Studies and Preparation (Required by NJDEP)	April 1989
	Award Contract and Appropriate Funds	July 1989
	Complete Contract	February 1990
	Complete PVSC review of Report	March 1990
	Issue RFP for Engineering Services for preliminary incinerator design (based upon incineration as the chosen option). This Contract will choose type of incinerator, siting, size, type of air pollution devices, air permit applications, including modeling.	March 1990

	Award Contract and Appropriate Funds	June 1990
	Complete Report, Submit Air Pollution Applications to NJDEP	March 1991
	NJDEP Review of Air Permits Completed, DEP requests further studies. (Assumes additional pretreatment needed)	June 1991
	RFP for Ambient Air Quality Sampling	July 1991
Phase II	RFP for Local Pretreatment Limits for Heavy Metals, Including Public Hearings	July 1991
	Award Contracts	October 1991
	Complete Contracts	September 1992
	Adopt Local Limits for Pretreatment	September 1992
	Companies Complete Implementation of Pretreatment	March 1995
	Resubmit Air Pollution Applications to NJDEP with pretreated sludge	September 1995
	NJDEP Issues Air Pollution Permits	January 1996
Phase III	RFP for Design of Sludge Treatment Process Improvements	February 1996
	RFP for Design of Incinerators	February 1996
	Award Contracts	April 1996
	Complete Designs	October 1997
	Submit Plans to NJDEP for Review	November 1997
	NJDEP Approves Designs	February 1998
	Advertise for Construction	March 1998

Award Bids	July 1998
Complete Construction	July 2001
Complete Start-up and Testing	December 2001

The schedule is based upon the assumption that Incineration will be the selected alternative and that no legal challanges to the selection of the processes or siting occurs. It also assumes that the review of air permit applications will indicate the need for Ambient Air Quality Monitoring and further Pretreatment. If further pretreatment is not needed, 3 years could be cut from the schedule. If neither ambient air quality monitoring or additional pretreatment are required, 4 1/2 years could be cut from the schedule.

Previous discussions with the NJDEP Air Permits Section lead us to believe that the sludge must attain its final metals level before an air permit can be issued. For this reason, the Schedule shows issuance of the air permit <u>after</u> all companies are in compliance with additional pretreatment requirements.

Statement of David V.D. Borden before the Senate Committee on Environment and Public Works February 18, 1988

Mr. Chairman, members of the Committee. I am David V.D. Borden, Chairman of the New England Fishery Management Council. Thank you for the opportunity to comment on S.2030 and to discuss the larger issue of ocean dumping in general. I will submit for the committee's information several exhibits including certain materials regarding these issues transmitted by our sister Council in the Mid-Atlantic area to members of the House of Representatives. The New England Council supports the purpose of S.2030 and the similar legislation introduced in the House by Representative Schneider. We compliment the sponsors of the legislation and hope that the best facets of the various legislative initiatives will be combined in legislation to be enacted this year.

In the New England and Mid-Atlantic Councils' area there are some 5 million recreational marine anglers and over 100,000 commercial fishermen. According to the National Marine Fisheries Service, the value of the fish products landed by commercial fishermen in this area is over $560 million dollars annually. In addition, there are 29 million marine recreational fishing trips every year. By the most conservative estimates, the total annual value of these fisheries is clearly in the billions of dollars. These fisheries are a renewable resource that have provided similar benefits since the founding of our nation and have the capacity to continue to provide those benefits for the indefinate future. These future benefits should be considered in any economic evaluation of the cost of disposal.

The primary area of our concern is the deepwater dumpsite for sludge located only a few miles east of the highly productive offshore canyons. The disposal site and the natural dispersive nature of the continental slope area broadens the potential effects of ocean dumping far beyond the area of the designated dumpsite. The National Marine Fisheries Service has analyzed the potential area of dispersion around the dumpsite as a result of ocean currents. That area is illustrated on Exhibit #1. The general pattern of ocean currents is shown on Exhibit #2.

The offshore canyon areas, which abut the dump site, are valuable spawning, nursery, migration, and adult habitats for various marine species. According to a NMFS technical memorandum, more than 200 species of shellfish and finfish rely on clean continental shelf water for their survival. Among the more important commercial and recreational fisheries in the area potentially affected by the dumpsite in question are lobster, tilefish, butterfish, squids, swordfish, and several tunas. The areas where these fisheries are prosecuted are shown in relation to the dumpsite in exhibits 3,4,5,6,7, and 8. Bluefish at various life cycle stages move through the impacted area as shown in exhibit 9.

Although our Council recognizes that the long-term effects of ocean dumping on fisheries cannot be precisely quantified, we are concerned that such dumping constitutes a serious threat to fishery productivity, the wholesomeness of seafood, and consequently to public acceptance of seafood products. Many of the undesirable effects of ocean dumping on marine life which have been documented near the old 12-mile site are now being observed by fishermen near the 106-mile site.

The dramatically increased dumping of sludge and proposals for industrial waste disposal alarm both recreational and commercial fishermen. Industry representatives have already provided our Council with verbal testimony which details increased marine debris, fouled gear, lowered catches, and decreasing marine life in the area around the dumpsite. Apparently, dispersal characteristics were a major justification for moving sludge and industrial waste disposal from the closed 12-mile site to the 106-mile site. We are concerned that wider dispersal, in fact, merely widens the area of the problem -- particularly with the increased volume of dumping involved.

On January 13, 1988 our Council unanimously adopted a resolution to oppose ocean disposal of industrial waste, contaminated sludge, and other harmful materials. The Council also strongly urged state and federal agencies to reduce discharges of wastes and sludges into rivers and the marine environment and to increase research, surveillance, and monitoring activities associated with all waste disposal that affects the sea. Further, the Council urged the Environmental Protection Agency to aggressively enforce all existing rules and regulations on technology and pre-treatment standards associated with ocean dumping. All of these actions have since been endorsed by the Mid-Atlantic Fishery Management Council at their meeting on January 19, 1988.

The question naturally arises as to whether or not it is reasonable to advocate a position which calls for a cessation of all ocean dumping. I believe that it is clearly in our national interest to stop ocean dumping. Most urban areas in the United States already have developed solutions to their waste disposal problems. Only a few major industrial areas of the Northeast continue to use the ocean as a cheap alternative to less detrimental disposal options. As recognized in the testimony provided by the Mid-Atlantic Council, land-based recycling and incineration are viable alternatives employed in other areas with economic and environmental success. It is essential that the EPA and states enforce all pre-treatment standards to ensure that sludge and other waste materials be acceptable for recycling and incineration options.

In conclusion, I believe there are cost-effective alternatives to dumping toxic waste in the ocean. The simple truth is that coastal municipalities will continue to rely on low-cost oceanic disposal methods until forced, by legislation, to employ alternative waste management strategies. The ocean, the fishermen who utilize it, and fish consumers should no longer be asked to subsidize (in either health or economic context) municipalities with short-sighted waste management programs.

Exhibit #1

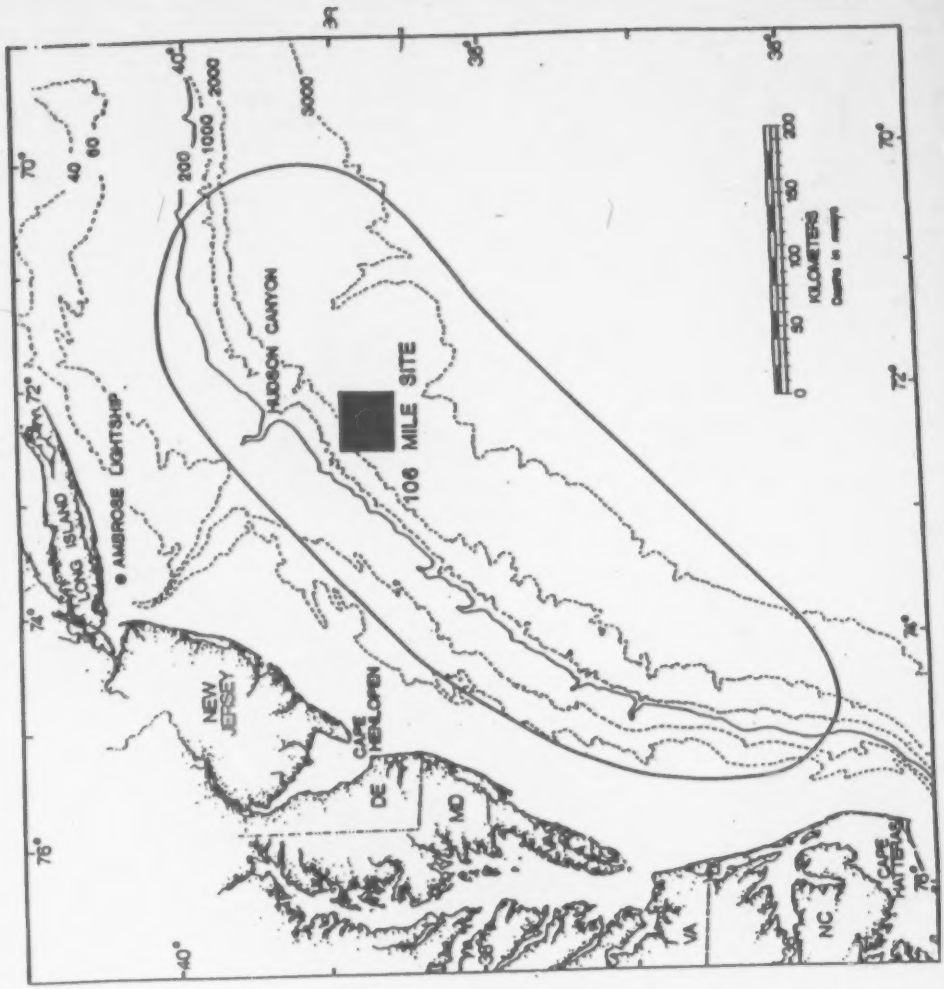

106 MILE SITE
HUDSON CANYON
AMBROSE LIGHTSHIP
LONG ISLAND
NEW JERSEY
CAPE HENLOPEN
DE
MD
VA
NC
CAPE HATTERAS
KILOMETERS
40
60
200
1000
2000
3000
50
100
150
200
70°
72°
74°
76°
38°
40°

Exhibit #2

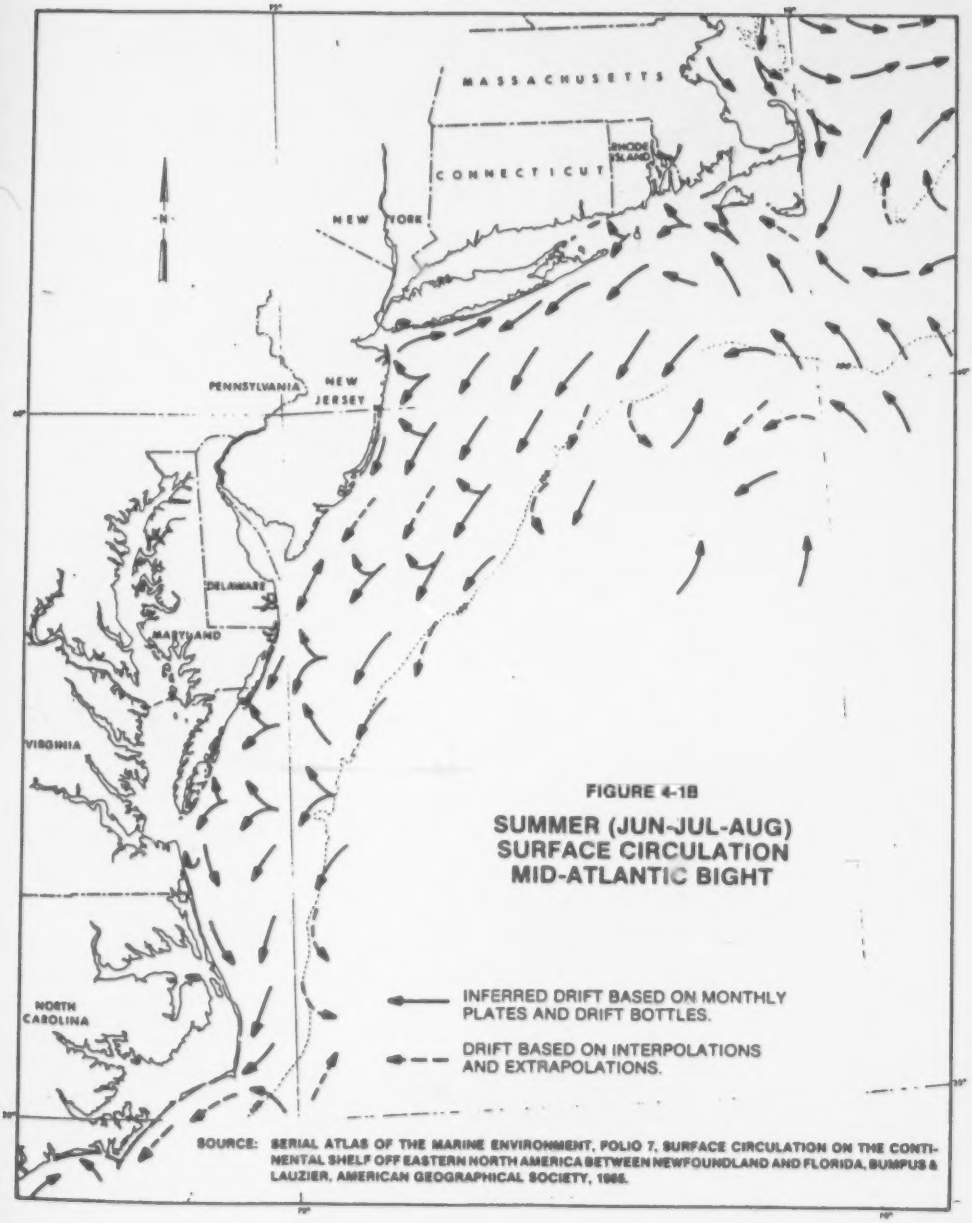


FIGURE 4-1B

SUMMER (JUN-JUL-AUG) SURFACE CIRCULATION MID-ATLANTIC BIGHT

SOURCE: SERIAL ATLAS OF THE MARINE ENVIRONMENT, FOLIO 7, SURFACE CIRCULATION ON THE CONTINENTAL SHELF OFF EASTERN NORTH AMERICA BETWEEN NEWFOUNDLAND AND FLORIDA, BUMPUS & LAUZIER, AMERICAN GEOGRAPHICAL SOCIETY, 1966.

Exhibit #3
COMMERCIAL FISHERIES
LOBSTER
Trap Fishery
RED CRAB
Trap Fishery, Primary
Trap Fishery, Secondary

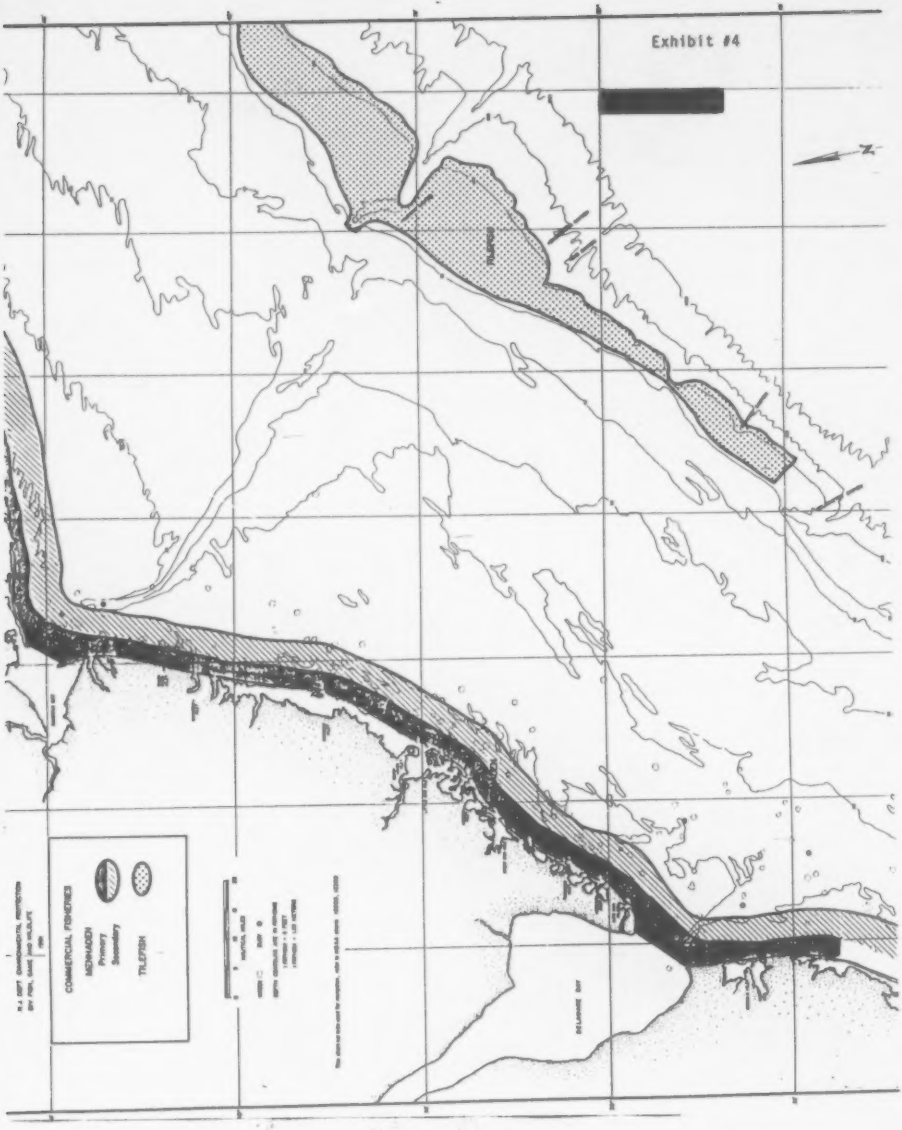


Exhibit #4
COMMERCIAL FISHERIES
MORANDEN
Primary
Boundary
TILEFISH

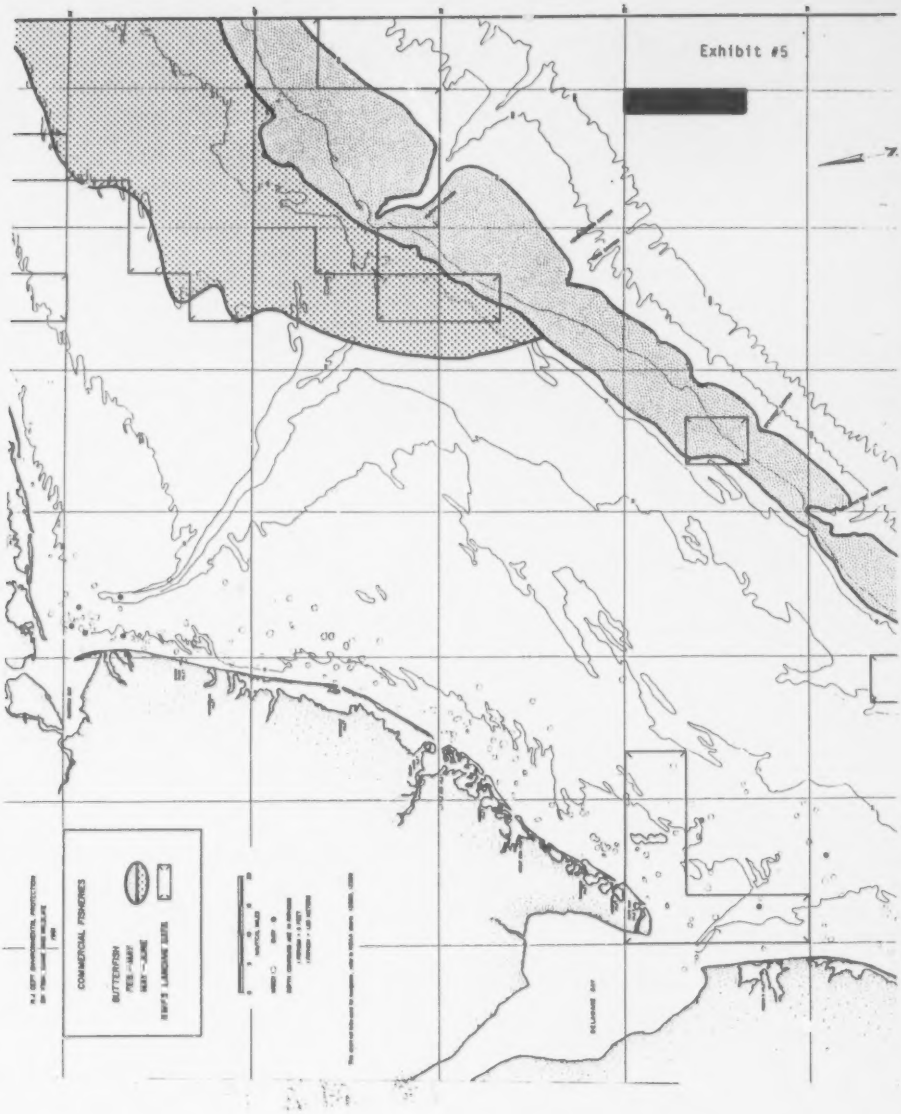


Exhibit #5
COMMERCIAL FISHERIES
BUTTERFISH
FEB. - MAY
MAY - JUNE
STATE LANDING DATA

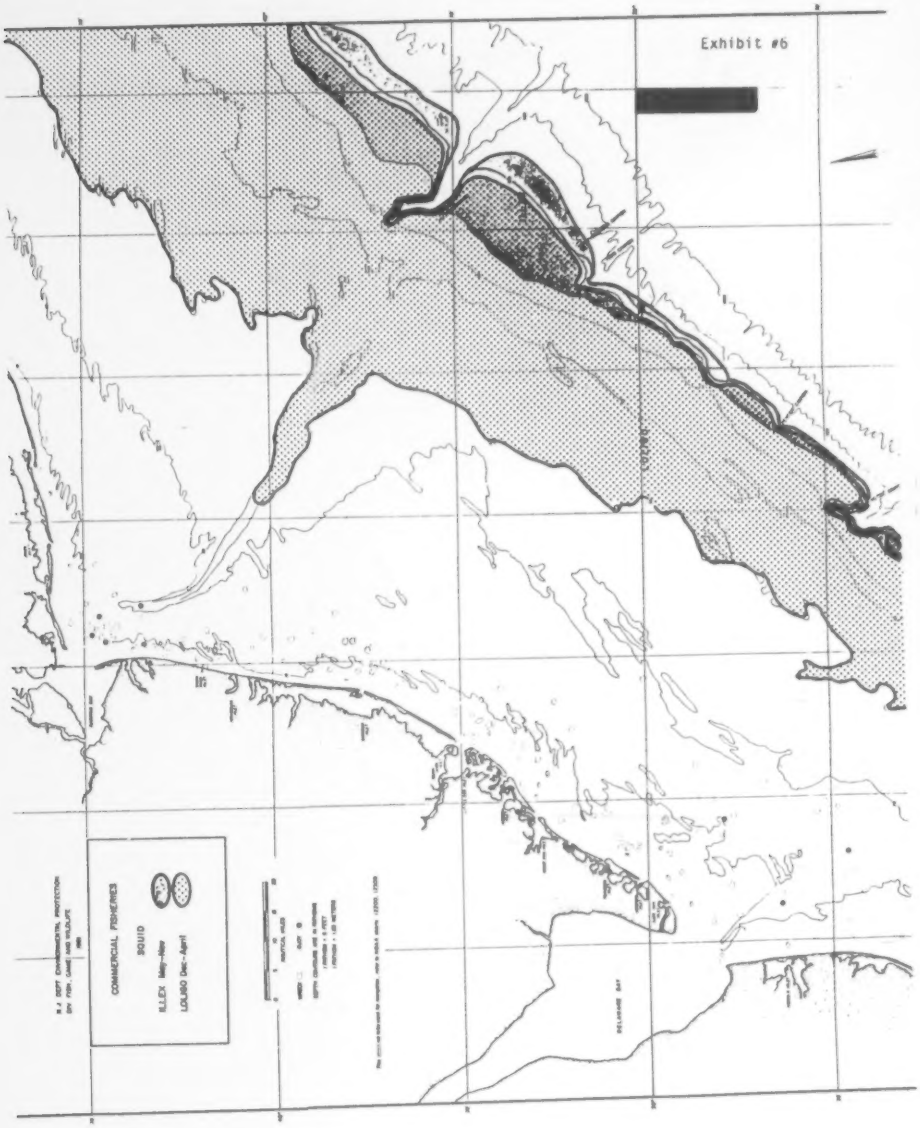


Exhibit #6
COMMERCIAL FISHERIES
SQUID
ILLEX May-Nov
LOLIGO Dec-April

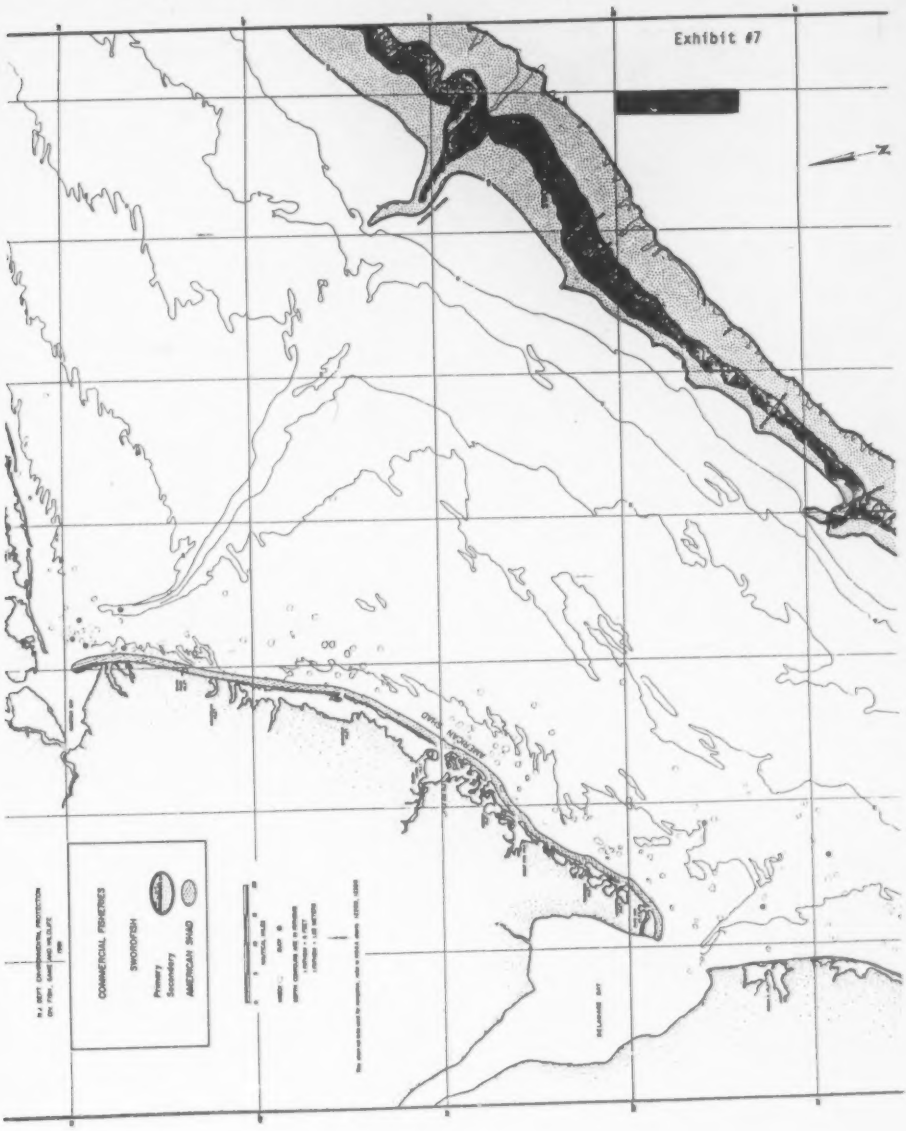


Exhibit #7
COMMERCIAL FISHERIES
SWORDFISH
Primary
Secondary
AMERICAN SHAD
OCEAN HIGHWAY

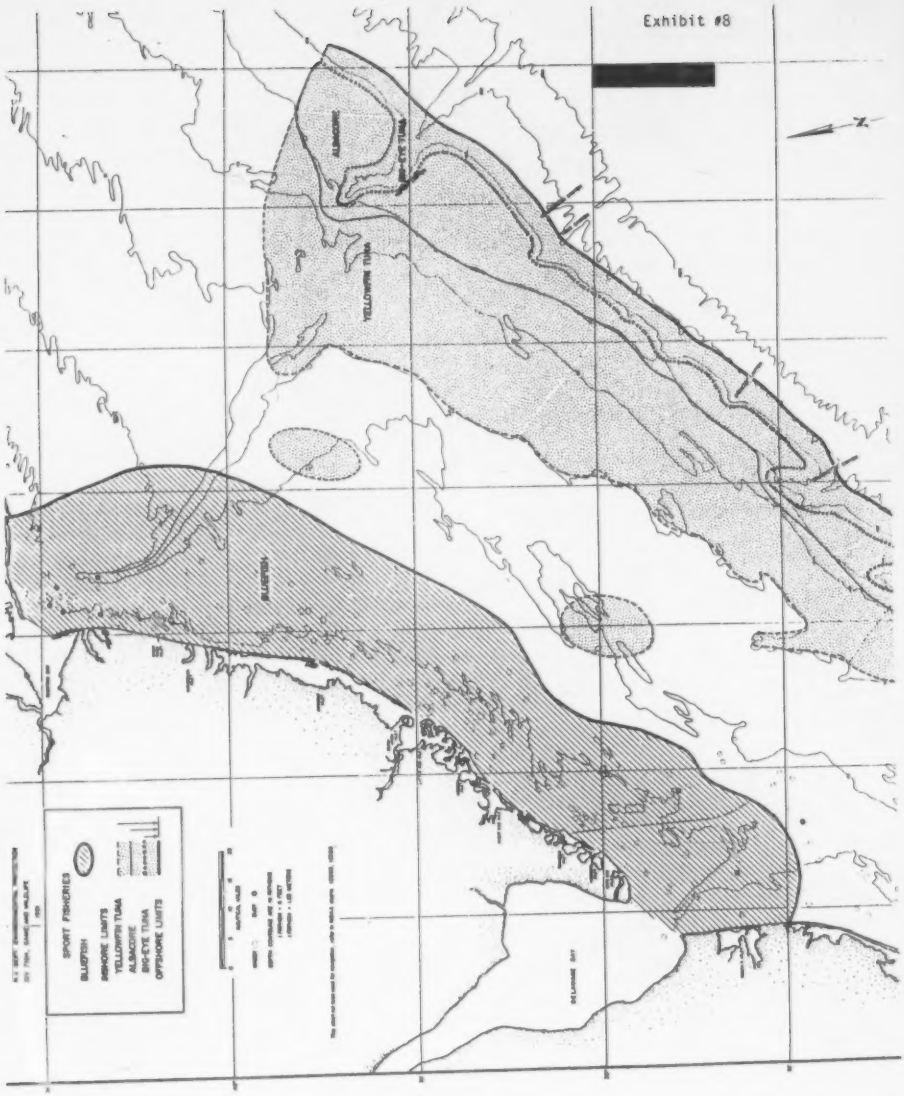


Exhibit #8
ALBACORE
BIGEYE TUNA
YELLOWFIN TUNA
BLUEFISH
SPORT FISHERIES
BLUEFISH
INSHORE LIMITS
YELLOWFIN TUNA
ALBACORE
BIGEYE TUNA
OFFSHORE LIMITS

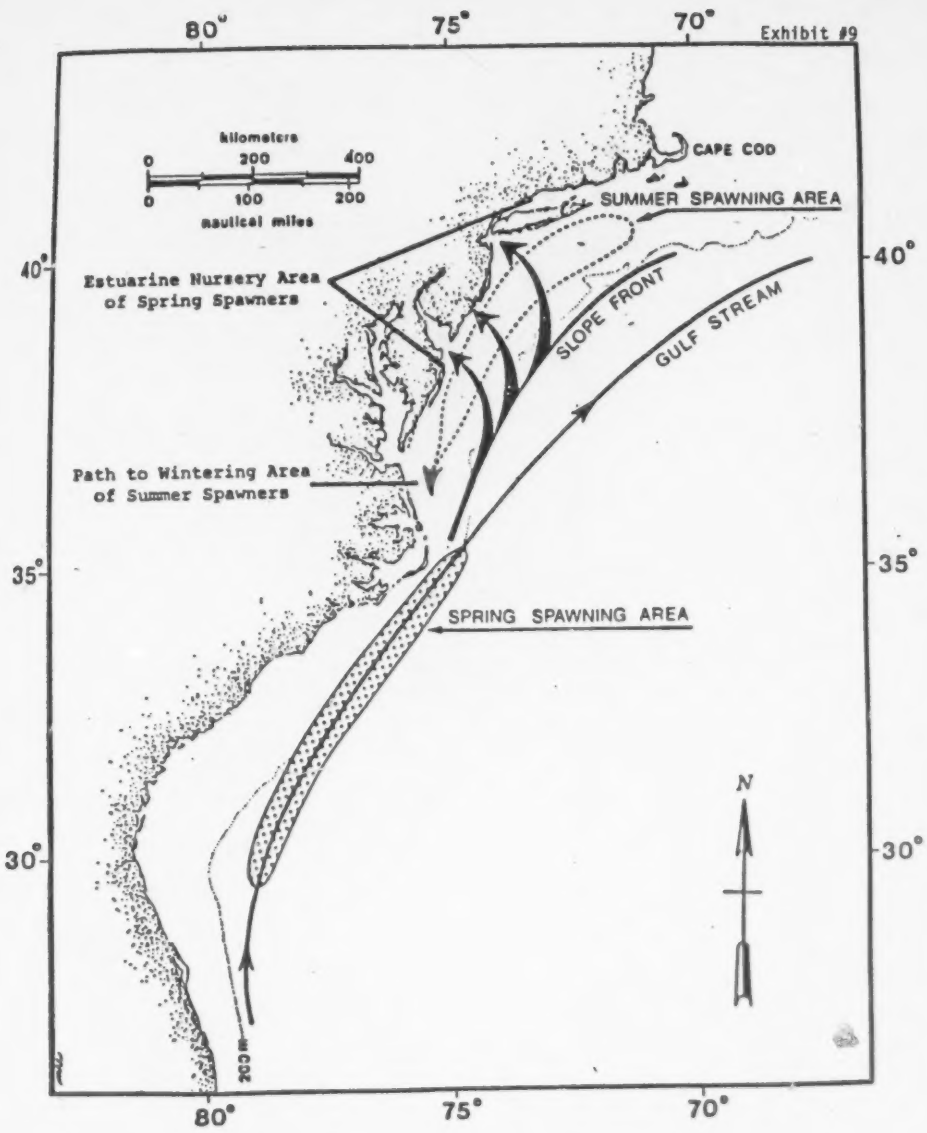


Figure 2. Diagrammatic representation of the early life history of bluefish, Pomatomus saltatrix, along the U.S. Atlantic coast. The figure is from Wilk (1977).

STATEMENT
OF

DR. RICHARD S. MAGEE, EXECUTIVE DIRECTOR
HAZARDOUS SUBSTANCE MANAGEMENT RESEARCH CENTER

NEW JERSEY INSTITUTE OF TECHNOLOGY
NEWARK, NEW JERSEY

February 18, 1988

Mr. Chairman and committee members, I appreciate this invitation to testify on alternatives to the dumping of sewage sludge at the 106-mile site off the New Jersey Coast.

If ocean dumping is to stop, sewage sludge must be treated to make it environmentally acceptable for land disposal. There are two candidate treatment technologies: incineration and composting. I will briefly discuss the status of these options.

INCINERATION

Incineration is one method for disposal of sewage sludge. Since 1934, when incineration was first used as a sewage sludge disposal technique, over 400 incinerators have been constructed. Over half of these were built between 1965 and 1975. Recent estimates are that 228 sludge incinerators are operational at 132 facilities. These units range in size from less than 1 dry ton of sludge/day up to 240 dry tons/day. In the new source performance standards (NSPS) review study[2] for sewage sludge incinerators conducted in 1982, it was estimated that 1.1 million dry tons of sludge are incinerated annually and that 63 sludge incineration facilities will be constructed between 1982 and the year 2000.[1]

On the average, 0.65 dry tons of sludge is generated per million gallons of municipal waste-water treated at publicly owned treatment works. The sludge is dewatered to 60-85 percent moisture content prior to incineration. With less fuel required for moisture evaporation more air is available to burn sludge, thus substantially increasing the overall combustion system's sludge throughput and productivity.

Incineration Systems

A variety of different technologies are available for incineration of municipal sewage sludge. By far the most common is the multiple-hearth furnace (MHF). Of the 228 incinerators mentioned earlier, 195 (86 percent) are multiple-hearth incinerators. Fluidized bed furnaces (FBF) account for most of the additional incinerators currently operating in the U.S., with 22

(about 10 percent of the total) in operation. Electric (infrared) incinerators are used for disposing of sewage sludge, particularly in smaller rural communities. A total of 5 operational electric incinerators have been located.

Dewatering is a critical step in the process of sludge incineration, since it reduces the thermal demand on the incinerators. Vacuum filtration, filter presses, belt filters and centrifugation are the most widely used sludge dewatering technologies, although numerous other processes are available.

Multiple-Hearth Furnace

The basic multiple-hearth furnace design is nearly a century old, having been initially developed for roasting of mineral ores. An air-cooled variant of the original Herreshoff design has been used for incinerating sewage sludge since the 1930's.

The size of MHF's used for incineration of sewage sludge typically range from 6 hearth furnaces having an outer diameter of ~ 6 ft. and a total effective hearth area of 85 sq. ft., to 12 hearth, 22 ft. diameter furnaces with hearth areas of over 3000 sq. ft. Hearth loading rates range from between 7 to 12 pounds of wet sludge per hour, per square foot. This corresponds to furnace capacities of from 600 pounds of wet sludge per hour up to 18 tons per hour.

Fluid-Bed Incinerators

Since its original development as a method for recovering catalysts in the oil refining industry, fluidized-bed technology has been applied to a wide range of industrial processes. The first fluidized-bed incinerator, designed specifically for incineration of sewage sludge, was installed in 1961 in Lynwood, Washington.

The physical dimensions of FBF units range from diameters of 6 to 28 feet. Fluidized-bed incinerators have sludge loading rates of between 30 to 60 wet lb/hr/sq. ft. (roughly 5 times higher than multiple-hearth furnaces). Burning capacities of FBF units range from one-half to 15 tons of wet sludge per hour.

From the standpoint of combustion, fluidization of the sludge has a number of advantages. First, the turbulence in the bed facilitates the transfer of heat to the sludge. Similarly, nearly ideal mixing is achieved between the sludge and the combustion air as a result of the greatly increased surface areas available. Finally, the sand in the bed provides a relatively uniform source of heat within the bed.

The most noticeable impact of the better burning atmosphere provided by a fluidized-bed incinerator is seen in the amount of excess air required for complete combustion of the sludge. Fluidized-bed sludge incinerators can achieve complete combustion with 20 to 50 percent excess air. This is about half the amount of

excess air typically required for incinerating sewage sludge in multiple-hearth furnaces. As a consequence, FBF incinerators have generally lower fuel requirements compared to MHF incinerators, and reduced flue gas loading on the air pollution control system.

Electric Incinerators

The electric furnace is the newest of the technologies currently in commercial use for the incineration of sewage sludge. Most of these units were installed in the middle and late 1970's. The capacities of existing units are less than one ton of wet sludge per hour.

Electric incinerators consist of a horizontally oriented, insulated furnace. A belt conveyor extends the length of the furnace. Infrared heating elements are located in the roof above the conveyor belt. Combustion air is preheated by the flue gases and is injected into the discharge end of the furnace.

Control Technologies and Efficiencies

Control technologies for sewage sludge incinerators can be grouped into two categories: combustion control and flue gas control.

Combustion Control

Proper control of combustion has been shown to be effective in controlling particulate emissions and reducing fuel consumption. Specifically, test programs have demonstrated fuel savings of 34-70 percent and a reduction in particulate emissions of 50-85 percent as a result of good combustion control. Although supporting test data are not available, control of combustion conditions should also result in lower organic emissions. In general, destruction of organic emissions is related to temperature and residence time. To maximize destruction of organic compounds, the incinerator should be operated to maximize temperature and residence time.

Flue Gas Controls

Add-on control devices such as venturi/impingement-tray scrubbers have been demonstrated to be effective for control of particulate emissions. In fact, sewage sludge incinerators have historically been controlled by wet scrubbers. Recently, fabric filters and ESP's have been utilized for particulate control. Afterburners are potential controls for organic compound emissions; however, as yet they have not been employed on sewage sludge incinerators.

Water scrubbers are by far the predominant control devices currently used for control of particulate emissions from sewage sludge incinerators. Sewage treatment plants provide a relatively inexpensive source of scrubber water (plant effluent) and a system for treatment. In addition, a long history of scrubber

applications has demonstrated success in meeting pollution control standards for particulate matter. Nearly 90 percent of the incinerators built since 1978 employ venturi/ impingement-tray scrubbers. In general, particulate removal efficiencies of 98-99 percent are readily attainable, and trace metal removal efficiencies exceed 90 percent.

A properly controlled combustion process, coupled with a well-maintained modern air pollution control system can minimize flue gas emissions protecting both the environment and public health.

COMPOSTING

Composting has come into widespread use as a wastewater sludge treatment process during the last several years. A 1985 nationwide survey showed 78 operating sludge composting facilities, 62 in various stages of realization, and 5 that had been shut down. The major cause of shut-down was nuisance odor; this is also a problem at some operating facilities.

Composting is currently used to treat less than a quarter of New Jersey's sludge. However, its importance to the sewage sludge disposal problem will increase with the ban on ocean dumping. Unfortunately, in the past the employment of improper design criteria to composting facilities has created problems. Many of these difficulties can be attributed to a lack of attention to microbial heat generation - temperature interaction. Living organisms have a narrow temperature tolerance range and a sharp decline in microbial activity occurs above 60°C. All too often, current designs lead to destructive temperatures because of inadequate pile ventilation and a lack of temperature feedback controls, leading to "microbial suicide" in the compost pile, odor problems and excessive construction and operating costs.

Composting is a biological process that can serve as a treatment component of an overall sewage sludge management plan. The following sludge management goals can be advanced through composting: (1) putrescible (odor-causing) material is decomposed; (2) volume, weight and water content are decreased; (3) pathogenic organisms are destroyed; and (4) a stabilized residue is produced. Compared to the raw sludge, the process residue is more easily stored, transported, and disposed of, and may be amenable to resource recovery.

Most sewage sludges, even those containing high levels of hazardous substances, can be composted. However, only "clean sludges", as defined by NJ DEP criteria are suitable as a feedstock for the production of a compost intended for general distribution as an organic amendment for soil. This does not necessarily restrict the process' usefulness to the treatment of clean sludge. A "dirty sludge" could yield a residue suitable, for example, for resource recovery through incineration because of its appreciably lower moisture content. Composting offers the advantage that it can remove water inexpensively, yielding a relatively dry and

reasonably uniform product. Thus a "dirty sludge" might usefully be pretreated through composting to advance overall sludge management goals.

Principles of Composting

Composting is a microbial process which can commence spontaneously when organic material is piled together. Simply, the process takes fresh organic waste, oxygen and microbial activity and produces decomposed organic residue, carbon dioxide, water, nitrogen compounds and heat.

The process depends on the action of diverse, beneficial, microorganisms which are present in soil and most organic wastes. These organisms grow and increase in number utilizing the nutrients in the waste, thereby partially decomposing it. All organisms necessary for the process are available inherently and special inoculums are not necessary.

Proper biological decomposition under aerobic conditions is necessary throughout the composting mass to minimize odors. This requires a diverse population of microorganisms at temperatures consistent with their survival. Aerobic conditions must be maintained so that the various compounds can be decomposed before they escape the composting system and cause odors. Hence, the mass must be ventilated (aerated) to maintain the aerobic condition, and the temperature must be controlled to preserve the diverse microbial population and a high rate of decomposition.

Excess heat in the composting mixture can lead to problems in the composting process due to a decrease in microbial activity. Controlled water evaporation and its vapor removal is used as a means to regulate the temperature. However, care must be exercised to avoid the composting pile becoming too dry due to excessive evaporative losses related to the rise in temperature. This can lead to a false assumption that the composting process is completed because of the resulting reduction in microbial activity since this reduction can occur because of substrate or water depletion.

The aim of composting is to obtain rapid biological decomposition under aerobic conditions. Rapid decomposition helps address the problem of odor by speedily destroying the odor-causing material before it escapes to the atmosphere. A high rate of decomposition also promotes low capital and operating costs and requires less facility time and space.

Composting Systems

The design and operation of composting systems is based upon empirical data gathered from pilot scale and actual operating plants. The rate constant data for the aerobic decomposition of a variety of sludges is still evolving and consequently this requires the overdesign of the composting system to ensure minimal odor production, as well as an excessive buffer zone around the facility to minimize the effect of any problems in the surrounding

community. As the scientific parameters which govern the design and operation of the composting system are better defined through monitoring of over-designed, properly operated compost systems, this should allow for tighter design of future composting systems which can lead to more economical operation and smaller buffer zones.

SUMMARY

Bans on ocean sludge dumping should not be delayed because there are "no technological alternatives". Both incineration and composting are available, demonstrated technologies. We cannot afford to delay the implementation of these technologies.

I thank you for this opportunity to address the committee on this critical issue. I would be happy to answer any questions that you may have.

References

1. U.S. Environmental Protection Agency Second Review of Standards of Performance for Sewage Sludge Incinerators, March 1984. Research Triangle Park, N.C.
Publication No. EPA-450/3-84-010.

THE OCEANIC SOCIETY
EDUCATION • RESEARCH • CONSERVATION

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Washington, D.C. 20036
(202) 328-0098

February 18, 1988

Statement of Clifton E. Curtis
On Behalf of
American Cetacean Society
American Littoral Society
Atlantic Offshore Fishermen's Association
National Audubon Society
Cape May City Environmental Commission
Cape May County Chamber of Commerce Environmental Committee
Center For Environmental Education
Citizens For A Better Environment
Clean Ocean Action
Coast Alliance
Conservation Law Foundation of New England
Environmental Policy Institute
1000 Fathom Club
Friends of the Earth
Group For the South Fork
Long Island Sound Task Force
Marine Mammal Stranding Center
National Fisheries Institute
Natural Resources Defense Council
New Jersey Environmental Federation
Oceanic Society
Society For Animal Protective Legislation
South Jersey Regional Tourism Council Environment Committee
Western States Legal Foundation

Before the
Subcommittees on Environmental Protection and
Superfund and Environmental Oversight of the
Senate Committee on Environment and Public Works
Concerning
Implementation of Title I of the Ocean Dumping Act

I am Clifton Curtis, President of the Oceanic Society. The Society is a 45,000 member non-profit organization devoted to the protection, conservation and wise use of marine and coastal resources. In all of our activities we are dedicated to protecting the oceans for the people and wildlife that depend upon them for life, livelihood and enjoyment. I appreciate the opportunity to testify on behalf of each of the organizations listed above (hereafter referred to as the "Environmental Coalition") concerning the implementation of Title I of the Marine Protection, Research and Sanctuaries Act of 1972.

Our Environmental Coalition has long been concerned with the marine environmental consequences associated with uses of our

THE OCEANIC SOCIETY IS A NON-PROFIT, 501 (C) (3) ORGANIZATION
CONTRIBUTIONS ARE TAX-DEDUCTIBLE

oceans and coastal areas. Collectively, we have conducted a wide range of scientific and technical research, education and public policy programs in our continuing effort to focus the attention of decision makers and resource managers on the need for information-based marine policies.

The oceans, though vast and covering over 70 percent of the earth, are a vulnerable and complex environment. Numerous unique and important species live in or depend upon the oceans. Too often, however, our ocean and coastal resources are mismanaged due to narrow, short range special interests, with inadequate scientific understanding of the consequences. We have seriously damaged some of our coastal waters, where marine life is more plentiful. Much less is known about long-term threats to the deeper oceans, but there are strong signs of damage there, too.

In 1985, the Environmental Protection Agency initiated its "Near Coastal Waters (NCW) Strategic Planning Initiative," a multi-year effort to maintain and enhance near coastal water environmental quality. As the first stage of the NCW initiative, EPA's Office of Marine and Estuarine Protection released a "Strategic Options Paper" in August, 1986.[1] The findings of that paper substantiate the urgent situation we are facing. Quoting from the paper's introduction (footnotes omitted):[2]

> Degradation of the near coastal water environment has become a critical national problem. The ecological, economic, recreational and aesthetic integrity of near coastal waters systems in the United States is threatened daily by the cumulative impacts of a multitude of activities within the coastal drainage basins, in the near coastal waters, and on the ocean. Portions of near coastal water and shore habitats in every geographic region of the country and in every coastal state have been found to be degraded to a moderate or severe degree.
>
> Continuing increases in year-round and seasonal coastal populations are adding pressures to near coastal water ecosystems already stressed by multiple uses and demands. As near coastal water environments become degraded, less of the resources are available for use by more people. There are adverse impacts to fisheries, outdoor recreation, and human health, as well as secondary impacts on tourism and property values.

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[1] Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency, "Near Coastal Waters Strategic Options Paper," August 12, 1986.

[2] Id. at I-1.

Given this serious and growing problem, policies affecting the future of the ocean and its resources must be developed with environmental consequences as a primary consideration. They must be set with appropriate respect for the linkages in the ecosystem. An ecological ethic is essential in order to ensure the protection, conservation and wise use of our vital marine resources.

I. The Ocean Dumping Act: Background and Policy Overview

In 1970, the Council on Environmental Quality (CEQ) issued a report, Ocean Dumping: A National Policy, which concluded that there was a critical need for a national policy on ocean dumping. As part of such a policy, the CEQ called for enactment of a domestic law governing ocean dumping-related activities, as well as a complementary international treaty. In anticipation of such regimes, the CEQ enunciated several issue-specific principles which are equally, and even more, pertinent today -- 18 years later. Those principles included the following:

- Ocean dumping of materials clearly identified as harmful to the marine environment or man should be stopped.

- When existing information on the effects of ocean dumping are inconclusive, yet the best indicators are that the materials could create adverse conditions if dumped, such dumping should be phased out....

* * *

- Ocean dumping of undigested sewage sludge should be stopped as soon as possible and no new sources allowed.

- Ocean dumping of digested or other stabilized sludge should be phased out and no new sources allowed. In cases in which substantial facilities and/or significant commitments exist, continued ocean dumping may be necessary until alternatives can be developed and implemented. But continued dumping should be considered an interim measure.

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- Ocean dumping of polluted dredged spoils should be phased out as soon as alternatives can be employed. In the interim, dumping should minimize ecological damage.

* * *

- Ocean dumping of industrial wastes should be stopped as soon as possible....

Soon after the CEQ report was published, the Marine Protection, Research and Sanctuaries Act ("Ocean Dumping Act" or "Act") of 1972 was enacted. Pursuant to Title I of the Act, no permits may be given for dumping of certain "black list" substances enumerated in Annex I; and certain "grey list" substances enumerated in Annex II require a special permit before they can be dumped. Regulations and criteria pursuant to the Act were published initially in 1973, with the most recent substantive revisions thereto published in 1977.[3]

Also in 1972, the United States and more than eighty other countries reached agreement on a parallel international treaty governing ocean dumping -- the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the "London Dumping Convention" or "LDC"). That treaty received the necessary ratifications (including the United States) to enter into force in 1975, with it having been accepted by 61 countries to date. The LDC provisions contain "black list/grey list" concepts similar to the Ocean Dumping Act. Moreover, the Ocean Dumping Act specifically requires the Administrator of EPA to apply the standards and criteria developed under the LDC in meeting responsibilities under our domestic law.

The actions taken in 1972 to enact the Ocean Dumping Act and to conclude agreement on the LDC treaty both exemplified very appropriate "first steps" in response to the CEQ's call for new regulatory regimes governing ocean dumping. Both those regimes, in letter and in spirit, recognized the need to protect the marine environment, and they provide a framework within which the above-quoted CEQ principles could be addressed. Despite their existence, though, the CEQ's stated principles still have not been met, despite their increasing validity over the past 18 years.

Our Environmental Coalition strongly opposes ocean dumping of sewage sludge, dredge spoil, or industrial waste which is contaminated with significant levels of persistent toxic pollutants, including organohalogens (e.g., PCBs), carcinogenic petroleum fractions (particularly polynuclear aromatic hydrocarbons (PAHs)), toxic heavy metals (e.g., cadmium, mercury, lead), and pathogenic (disease producing) microorganisms.

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[3] 40 C.F.R. Part 227.

Some of the reasons against ocean dumping, which in important respects also underly the guiding principles stated in the CEQ's 1970 report, are as follows:[4]

1. Persistent toxic materials should, to the maximum possible extent, be isolated and contained (if not destroyed or recycled) to facilitate management, control, monitoring, and (if necessary) remedial actions; the ocean as a dispersal medium is inimical to this objective;

2. Unlike waste disposal on land, the ocean as a disposal medium is inherently more vulnerable to exploitation and abuse since it is not protected by the marketplace and political forces that protect private property and demand accountability on land; and

3. Given the lack of complete knowledge and the necessity of acting despite such knowledge gaps, disposal of persistent toxic wastes in the ocean, to the extent it serves to reduce even short-term impacts, is likely to do so only at the expense of those down-current and in the future, and so should be resisted in favor of true treatment and containment technologies.

It has also been suggested that municipalities located inland of coastal communities have good cause to advance a fourth reason against ocean dumping of sewage sludge, i.e., fairness.[5] Land-based management practices are applied to 96% of the sewage sludge currently produced in the United States. While inland communities bear the expense of land-based sludge management options, a few of their coastal counterparts have shirked their responsibility to protect the environment in favor of the cheap and politically expedient option of ocean dumping.

Each of the above reasons, in our view, has substantial merit. Moreover, they provide a sound basis for EPA's overall

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[4] Statement of Kenneth S. Kamlet, on behalf of the National Wildlife Federation, at a Hearing on Reauthorization of the Marine Protection Research and Sanctuaries Act, Before the Subcommittee on Oceanography and the Subcommittee on Fisheries and Wildlife Conservation and the Environment, of the Committee on Merchant Marine and Fisheries, House of Representatives, 98th Cong., 2nd Sess., Serial No. 98-39, March 1, 1984, at 80.

[5] Id.

policy on ocean dumping, which was most recently articulated by Agency officials in 1984:[6]

> Generally, on all future permit decisions, EPA's approach to ocean dumping may be summarized as follow [sic]....(1) The Agency will, as an overall principle, protect the oceans from significant adverse effects of waste disposal. We will particularly assure that they are not used for "cheap" waste disposal as a matter of short run economic considerations alone; (2) In any specific case, the Agency will allow ocean disposal of a waste only if the applicant can show that no practicable alternatives are available that have less impact on the total environment. EPA will apply a rule of reason in determining practicability; and (3) For the long run, the Agency will actively encourage environmentally beneficial approaches such as waste minimization, recycling or reuse.

Our Environmental Coalition believes that (1) the CEQ's statement of principles, (2) the above-stated reasons against ocean dumping, and (3) EPA's overall policy approach to ocean dumping should serve as the foundation for your Subcommittees' review of the implementation of Title I of the Ocean Dumping Act. With these considerations in mind, I would now like to address the various types of dumping regulated under Title I, with a special emphasis on sewage sludge, since that issue has been highlighted in your invitation letter as a major focus of this hearing.

II. Sewage Sludge Dumping

A. Regulatory and Judicial Backdrop

Sewage sludge dumping in the ocean is regulated under Section 102 of the Ocean Dumping Act. However, sewage sludge dumping in the New York Bight long preceded the Act. That area has been subject to sludge dumping for over 60 years; the 12-Mile dump site was designated in 1924.

An amendment to the Act in 1977 prohibited EPA from issuing any permits for dumping of sewage sludge after December 31, 1981. Sewage sludge was defined as follows:

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[6] This policy statement was set forth in the introductory paragraphs of an EPA public notice announcing its tentative decision to discontinue use of the 12-mile sewage sludge dump site in the New York Bight Apex. 49 Fed. Reg. 19042, May 4, 1984.

> ...any solid, semi-solid, or liquid waste generated by a municipal wastewater treatment plant the ocean dumping of which may unreasonably degrade or endanger human health, welfare, or amenities or the marine environment, ecological systems, and economic potentialities.

In accordance with this statutory mandate, over 200 sewage treatment plants terminated ocean dumping of sewage sludges and implemented land-based disposal methods by the December 31, 1981 deadline. However, nine large municipal sewage authorities (with a total of 37 individual treatment plants) did not meet the deadline. EPA denied further renewal of their permits in 1981, at which time the municipalities challenged that decision in court.

In February, 1981, in Bergen County Utilities Authority v. EPA, 507 F. Supp. 780 (D.N.J. 1981) a district court in New Jersey upheld EPA's refusal to issue a permit for continued ocean dumping of sewage sludge.

Subsequently, in City of New York v. EPA, 543 F. Supp. 1084 (S.D.N.Y. 1981), New York City argued that Congress only intended to ban dumping which "unreasonably" degraded the marine environment. In addition, New York argued that EPA, in determining whether degradation is "unreasonable," must evaluate the costs and potential hazards of land-based alternatives. In an August, 1981 decision, Judge Sofaer held that EPA could not deny ocean dumping permit applications without considering the cost and potential hazards from land-based alternatives. EPA was prevented under that decision from prohibiting New York City from continued dumping at the 12-Mile Site until EPA ruled on the City's petition to redesignate the 12-Mile Site.

In related action, six other northern New Jersey sewer authorities sued EPA using New York City's arguments. EPA agreed to permit them to continue dumping at the 12-Mile Site until they made a final decision on petitions to redesignate the site.

EPA denied those petitions in April of 1985. One year prior to that decision, in May of 1984, EPA had designated a Deepwater Municipal Sludge Dump Site (hereafter, the "106-Mile Site"). Under court orders arising from the suits against EPA, the City of New York and eight municipalities were required to terminate use of the 12-Mile Site by December 31, 1987, and to transfer dumping activities to the 106-Mile Site. Dumping at the 106-Mile Site will continue, subject to (1) EPA's final determinations on each municipality's permit application that is currently pending,

and (2) the Agency's review of the site's suitability, including the effects caused by past and ongoing dumping.

Continued ocean dumping of sewage sludge is contrary to the absolute prohibitions in the London Dumping Convention against the dumping of other than trace amounts of "black list" constituents (mercury, cadmium, organohalogens, and oily wastes). Since the Convention's requirements are binding on the United States, the allowance of any ocean dumping of sludge containing other than trace contaminants -- whether on an interim or final basis -- is illegal. Regulations promulgated under the Act (40 CFR Part 227) (the "ocean dumping regulations") authorize the issuance of ocean disposal permits only after consideration of the environmental effects of the proposed dumping operation, the need for the ocean dumping -- including the consideration of alternatives -- and the effect of the proposed action on esthetic, recreational and economic values and other uses of the ocean. Ocean dumping of sludge does not satisfy these criteria.

As discussed in Part II(F) below, our Environmental Coalition supports, with certain modifications, the legislation proposed by Senator Lautenberg to prohibit ocean dumping of sewage sludge after December 31, 1991. We believe that such a proposal is necessary to direct existing sewage sludge dumpers to pursue environmentally preferred land-based technologies for dealing with their wastes.

B. Demonstrated Effects on the Marine Environment At the 12-Mile Site

Section 227.4 of the ocean dumping regulations establishes criteria for evaluating environmental impacts of proposed dumping activities. Under this section, environmental acceptability is presumed if the applicable environmental prohibitions, limits, and conditions are satisfied. Under this provision, EPA must determine that the disposal will present:

(a) No unacceptable adverse effects on human health and no significant damage to the resources of the marine environment;

(b) No unacceptable adverse effect on the marine ecosystem;

(c) No unacceptable adverse persistent or permanent effects due to the dumping of the particular volumes or concentrations of these materials; and

(d) No unacceptable adverse effect on the ocean for other uses as a result of direct environmental impact.

The sewage sludges currently ocean dumped by New York City and the other New York and New Jersey Sewage Authorities are contaminated with low, but environmentally significant levels of persistent toxic pollutants, including organohalogens (e.g. PCBs), carcinogenic petroleum fractions (particularly polynuclear aromatic hydrocarbons (PAHs)), toxic heavy metals (e.g., cadmium, mercury, lead), and pathogenic (disease producing) microorganisms.

Degradation of the marine environment resulting from ocean dumping of such contaminated sewage sludge at the 12-Mile Site is well documented. While the physical and environmental conditions at the 106-Mile Site are considerably different than those at the 12-Mile Site, past evidence of effects on marine organisms at the 12-Mile Site must be considered in evaluating the appropriateness of continued sludge dumping at the 106-Mile Site. Ecological effects attributed wholly or in part to the ocean dumping of municipal sludge include:[7]

- closure of shellfish beds - elevated levels of bacteria from sewage sludge dumping at the 12-Mile Site resulted in the closure of a 150 square mile area surrounding the site to commercial shellfishing;

- introduction of viral, bacterial, fungal and protozoan pathogens into the area of impact;

- elevated levels of heavy metals (e.g., cadmium, mercury, lead, copper, chromium) and toxic organic compounds (e.g., PCB's) in bottom sediments;

- reduced bottom dissolved oxygen levels;

- reduced catches of bony fishes;

- alterations in the benthic biological community, particularly the proliferation of stress-tolerant polycheate worms;

- changes in relative abundance and diversity of species inhabiting the area in the vicinity of the 12-Mile Site;

- observed sublethal effects in organisms, including reduction of reproductive functions, bioaccumulation,

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[7] Anderson, Dr. Peter W., Statement for the Public Hearing on the Tentative Denial to Redesignate the 12-Mile Sewage Sludge Dump Site, at 8.

and increased bacterial resistance to antibiotics and toxic metals;

- increased incidences of fin rot and black gill;
- mutation of fish larvae and decreased survival of offspring; and
- planktonic blooms and anaerobiosis (resulting from introduction of carbon and nutrients).

It was because of these and other demonstrated adverse effects on the water quality and marine organisms within the vicinity of the 12-Mile sewage sludge dumpsite that led EPA in 1985 to set in motion a process for ending the use of this site. Rather than halting the use of the ocean altogether for sewage sludge dumping, the EPA opted to designate a deep water site located off the continental shelf. The hope is that the dumping of the harmful sludge in an area that is not heavily utilized by humans and is of "minimal ecological importance" will minimize the potential adverse impacts. However, as discussed below, it appears that the 106-Mile Site is not an appropriate site for sludge dumping.

C. The 106-Mile Site Is An Unacceptable Site

The 106-Mile waste disposal site is located approximately 100 miles due east of Cape May, New Jersey just off the continental shelf in waters ranging from 1,500m to 2,750m. Since 1961, this site has been used intermittently by more than 100 different dumpers as a dump site for a wide variety of waste materials.

1. Unique Regional Oceanic Processes

Because of the several different types of water masses that occupy the area throughout the year and the unpredictability of the strength and direction of currents, this area has been described as one of the most hydrographically complex areas in the western Atlantic Ocean.[8] It is this complex water mass structure, however, that provides for a "highly diverse and

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[8] Bisagni, James J. "Final Report - Long-Term Correlation of Industrial Waste Disposal at the 106 Mile Dumpsite with the Receiving Water Masses: October 1976 Through September 1985." A Report to the Northeast Fisheries Center, NMFS/NOAA, Department of Commerce, December 1985.

dynamic biological community" within the 106-Mile Site.[9] The dumpsite is located within continental slope waters, between continental shelf and Gulf Stream waters. Both continental shelf and Gulf Stream waters, however, periodically invade the area, thus complicating the predictability of the distribution and mixing of any waste plumes. Shelf water incursions into the dumpsite area occur predominantly in the spring when fresh water runoff and increased wind causes offshore movement of the shelf waters. Northward meandering of Gulf Stream water and the breaking off of Gulf Stream "warm core eddies" which traverse the dumpsite area are the causes of these water masses occupying the dumpsite.[10]

There are several implications arising from this complex water mass movement. First, the waters of the continental shelf off the East coast of the U.S. are some of the most productive in the world. The National Marine Fisheries Service notes that this area represents the spawning and nursery grounds for some 200 species of fish and no one area can be singled out as insignificant to the reproductive success of some species of fish.[11]

Most fish spawn pelagic eggs during the spring and summer months which drift in the water column until hatching takes place. Upon hatching, the developing larvae are dependent on, among other things, favorable circulation patterns, water quality and food supply. In the spring, when spawning is most intense within the waters of the continental shelf, these waters may move within the dumpsite area and expose the fish eggs and larvae and the plankton upon which they feed to the waste materials. In fact, studies conducted for NOAA indicated that, of all the wastes dumped at the 106-Mile Site over a ten-year period, 18.5 percent were dumped in the more biologically productive shelf water which had displaced the slope water occupying the 106-Mile Site.[12]

Second, Gulf Stream warm core eddies can distribute the waste dumped at the 106-Mile Site over a very wide area. The eddies are clockwise rotating warm core rings which break off of

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[9] National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS-F/NEC-26, August 1983, at xvi (hereafter, "106-Mile Update").

[10] Bisagni, supra, note 8 at 3.

[11] 106-Mile Update, supra, note 9 at xvi.

[12] Bisagni, supra, note 3, at 9.

the Gulf Stream and migrate in a west - southwest direction usually from offshore areas off New Jersey to the Outer Banks of North Carolina until they merge back into the Gulf Stream. Recent studies have shown that of the wastes dumped, anywhere from 13.4 percent to 23.5 percent of the wastes were dumped in Gulf Stream warm core rings.[13] These rings are significant for at least two reasons: they have the potential to distribute the waste over a large area; and big game fish, such as swordfish and marlin, tend to follow the edges of the rings. Thus, the potential for damaging these extremely valuable recreational and commercial fisheries is very real.

Although the dumpsite may be located in an area which is relatively remote from human populations, the oceanographic conditions present at this site have led the National Marine Fisheries Service to estimate that the "potential area of influence" (PAI) of the dumped wastes extends over an area off the coasts of New Jersey to North Carolina, encompassing approximately 116,000 km^2. **(See Figure 1).**

Another complication caused by the physical aspects of the 106-Mile Site is that throughout the year a density gradient called the "pycnocline" stratifies the water column, creating boundaries between layers of waters having different densities. During the summer months when surface waters are the warmest, the pycnocline is most pronounced, and lies at a depth of 20m to 50m. The pycnocline drops to about the 200m level during the winter months. This density gradient has the effect of acting as a barrier which the wastes are usually unable to penetrate. The mixing of such wastes during the summer months is thus confined to the biologically active top 50 meters of the water column, thereby putting at risk the organisms that have spawned during this most active of seasons. Living marine resources are at risk, since both pollutants and the living organisms have a tendency to stabilize just above the pycnocline, thereby exposing themselves to the pollutants.

2. Environmental Effects at the 106-Mile Site

Recent research at the 106-Mile Site reveals several trends that indicate that the ecology at the site may already be heavily stressed. Research has shown dumping (primarily of industrial waste) to result in an "unequivocal demonstrated biological

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[13] Bisagni, supra note 3 at 9; See also, Barton, Kenneth W., "Report of Water Masses Receiving Wastes form Ocean Dumping at the 106-mile Dumpsite: October 1, 1985 through September 30, 1986." Data Analysis Product, Report No. 23, March 1987. NMFS/NOAA.

response" to copepods, a planktonic crustacean which is as an important link in the oceanic food chain.[14] Specifically, a statistically significant decrease in the copepod Temora stylifera has been found at the site. In addition, two other trends have emerged for which insufficient data is available to make statistical comparisons. These are melanization (blackening) of euphasid gills and depressions in phytoplankton abundance.[15] These trends signify cause for extreme caution in increasing the pollution load at the site.

The risks posed by the presence of heavy metals in the sewage sludge are of particular concern. Although much of the metal component of the waste is expected to be scavenged by particles, the net result is an introduction of metals to open ocean waters. As is true in many situations, no record is kept of cumulative loads of contaminants at the dump site, in this case, heavy metals. The sensitivity of open ocean phytoplankton to metals is well documented, and the significance of the productivity of plankton to the global carbon cycle is only now being recognized.

The importance of phytoplankton to the entire marine ecosystem is stated in the 106-Mile Site Update (emphasis added):[16]

> The phytoplankton are often noted as being the basis of aquatic food chains and are, therefore, regarded as an essential component of the fisheries production system. In recent years it has become apparent that contaminants associated with wastes being dumped or discharged into waterways via point and nonpoint sources may affect phytoplankton populations, their productivity, and their relative usefulness within the food webs. Marine scientists therefore believe that the phytoplankton, collectively, are an extremely important component of the ecosystem and must be understood prior to implementing new waste disposal activities in marine waters or continuing or increasing waste loading.

The NOAA findings indicate a potentially damaging trend regarding phytoplankton impacts at the 106-Mile Site. Absent a

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[14] EPA Region II position paper on Du Pont Permit Application to Review Permit No. II-DE-138-Special, 1987 at 12.

[15] Id.

[16] 106-Mile Update, supra, note 9, at xvi.

clear understanding of this finding, sludge dumping should not be continued.

Further, a significant increase in moribundity of fish eggs in the potential area of influence and the frequency of damaged eggs was high (19.8 percent) in the waste plumes.[17] This finding is particularly disturbing in light of the fact that the 106-Mile Site supports important fisheries, including cod, haddock, menhaden, bluefish, mackerels, silver and other hakes, anchovy and sand lance.[18] As noted by NOAA:

> The fish and shellfish that inhabit the PAI sector of the shelf either as eggs, larvae, juveniles or adults constitute a significant segment of the commercial and recreational fisheries that contribute one billion dollars annually to the economies of the coastal states from Maine to North Carolina.

Clearly, dumping at the site may already have resulted in significant damage to the resources of the marine environment and unacceptable adverse effects on the marine ecosystem, in and around the dump site. Given the adverse impacts on copepods and fish eggs, and the adverse trend with regard to phytoplankton abundance, continued dumping at the site is unacceptable. This is especially true given that "the long term continued use of the site cannot be fully extrapolated due to insufficient information on the value of this planktonic community, especially the icthyoplankton on the population dynamics of the shelf."[19] As noted in NOAA's 106-Mile Site Update (emphasis in original):[20]

> The pelagic ecosystem of the potential area of influence (PAI) within and adjacent to the <u>immediate</u> vicinity of the disposal site location has not been, as yet, subjected to intensive study.

Under these circumstances, the Environmental Coalition believes that the requirements of Section 227.4 of the ocean dumping regulations have not been met.

Continued dumping of sludge would allow the dumping of mercury, cadmium, lead, chromium, PAHs and known carcinogenic or

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17 Region II position paper, <u>supra</u>, note 12, at 12.

18 106-Mile Update, at v.

19 Region III position paper, at 12.

20 106-Mile Update, at vii.

mutagenic material (copper, PCBs), which are prohibited from dumping under Section 227.6(a)(2), (3), and (5). However, Section 227.6(f) provides an exemption from the applicable limitations and prohibitions for dumping at sea only (emphases added):

> when the applicant can demonstrate that such constituents are (1) present in the material only as chemical compounds or forms (e.g., inert insoluble solid materials) non-toxic to marine life and non-bioaccumulative in the marine environment upon disposal and thereafter, or (2) present in the material only as chemical compounds or forms which, at the time of the dumping and thereafter, will be rapidly rendered non-toxic to marine life and non-bioaccumulative in the marine environment by chemical or biological degradation; provided that they will not make edible marine organisms unpalatable; or will not endanger human health or that of domestic animals, fish, shellfish, or wildlife.

Specifically, Section 227.6(c)(2) requires that bioassay results on the suspended particulate phase of the waste do not indicate occurrence of significant mortality or significant adverse sublethal effects including bioaccumulation due to the dumping of wastes.[21] Until such bioassays are conducted,

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[21] Section 227.8 of the ocean dumping regulations specify that:

> No wastes will be deemed acceptable for ocean dumping unless such wastes can be dumped so as not to exceed the limiting permissible concentration as defined in 227.27.

Under Section 227.27 the measure of "initial mixing" is only applied to the liquid phase of the waste. A difference in initial mixing might be expected between a deep ocean site such as the 106-Mile Site and a near shore site. By contrast, for the suspended particulate and solid phases of the sewage sludge (which contain most of the potentially harmful materials) the limiting permissible concentration (LPC) is defined strictly on the basis of laboratory toxicity and bioaccumulation tests, the results of which are uninfluenced by the choice of disposal site. It appears that no effort has been made to conduct bioassays for the waste that is currently being ocean dumped at the 106-Mile Site.

We understand that EPA is preparing proposed sewage sludge criteria that will alter the definition of the LPC. However, these regulations are not expected to be available for public review until the fall of this year.

compliance with the legal requirements for sludge dumping is uncertain.

3. The Site Is Not Suitable for Environmental Monitoring

While any proposed permit for sludge dumping is expected to require that monitoring activities be undertaken at the site to determine any adverse environmental impacts, past and potential industrial waste dumping at the site makes environmental monitoring in the area difficult, if not impossible. Industrial waste dumped at the site may be transported through some portions of the proposed sludge dumping site, or chemical wastes could be carried into the adjacent area designated for sewage sludge dumping. In the event of such mingling of waste plumes it would be virtually impossible to distinguish between chemically similar waste inputs, although waste indicator compounds could possibly be identified and monitored to eliminate mingling problems.

EPA's suggestion that the location of the sewage sludge and industrial waste dumping sites 10 nautical miles apart would minimize any contact between plumes, does not negate the fact that waste components from both sites will intermingle, based upon NOAA's determination that "the oceanographically dynamic location of the 106-Mile Site extends the ... PAI of dumped wastes over a wide area...."[22] NOAA further characterizes the site as a "highly dispersive environment where waste contaminants will be mixed effectively and transported in unpredictable ways from points of input."[23] Clearly, it is not possible to guarantee that wastes from the two portions of the 106-Mile Site will not comingle. Further, the increased volumes of sewage sludge that may be dumped at the 106-Mile Site could lead to greater overflow into the industrial waste site than might otherwise be expected.

Because of the highly dispersive nature of the ocean in this area, the monitoring of long-term effects will be extremely difficult. In order to effectively monitor for long-term effects, EPA would be required to monitor an area which for

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[22] 106-Mile Update, at v.

[23] Id., at xii (Emphasis added).

practical purposes is too large to cover on a long-term basis. EPA states in its 1980 Environmental Impact Statement for the designation of the 106-Mile Site that (emphasis added):[24]

> under the dynamic conditions at the 106-Mile Site, long-term monitoring will be nearly impossible to measure because affected plants and animals will most likely have moved out of the area, either by swimming or drifting with the water.

Current monitoring efforts are twice a year and only within the actual dumpsite. Prohibitive costs render a much greater monitoring effort impossible at this time.

One of the site selection criteria under Section 228.6 of the ocean dumping regulations is the feasibility of surveillance and monitoring. Given the rather limited likelihood of conducting any meaningful monitoring activities to determine effects of sludge dumping, this site appears to be inappropriate.

4. Impacts on Other Uses and Activities

In addition to a consideration of the question of environmental acceptability, review of a proposed dumping activity involves an evaluation of the effect of the activity on other uses of the ocean. The Ocean Dumping Act requires that EPA establish criteria for reviewing and evaluating proposed dumping activities with regard to the effect on alternate uses of the ocean, such as scientific study, fishing, other living resource exploitation, and non-living resource exploitation. Based upon that statutory directive, existing ocean dumping regulations include specific standards for evaluation of the impact of the proposed dumping on esthetic, recreational and economic values and other uses of the ocean (227.17 to 227.22).

Subpart D of the ocean dumping regulations requires that the impact of the dumping on esthetic, recreational and economic values be evaluated individually with respect to (227.17):

(1) Potential for affecting recreational use and values of ocean waters, inshore waters, beaches, or shorelines; and
(2) Potential for affecting the recreational and commercial values of living marine resources.

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24 Environmental Protection Agency, Environmental Impact Statement for 106-Mile Ocean Waste Disposal Site Designation, February 1980.

In addition, Subpart E of the Ocean Dumping Act regulations requires that an evaluation be made on an individual basis of the potential effects of the dumping on other uses of the ocean. Section 227.21 enumerates in detail those uses that must be considered. It states:

> An appraisal will be made of the nature and extent of existing and potential uses of the disposal site itself and of any areas which might reasonably be expected to be affected by the proposed dumping, and a quantitative and qualitative evaluation made, where feasible, of the impact of the proposed dumping on each use. The uses considered shall include, but not be limited to:
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> (a) Commercial fishing in open ocean areas;
> (b) Commercial fishing in coastal areas;
> (c) Commercial fishing in estuarine areas;
> (d) Recreational fishing in open ocean areas;
> (e) Recreational fishing in coastal areas;
> (f) Recreational fishing in estuarine areas;
> (g) Recreational use of shorelines and beaches;
> (h) Commercial navigation;
> (i) Recreational navigation;
> (j) Actual or anticipated exploitation of living marine resources;
> (k) Actual or anticipated exploitation of non-living resources...; and
> (l) Scientific research and study.

Absent an EIS on the transport and transfer phase of the proposed dumping activity, it is impossible to evaluate potential risks to esthetic, recreational and economic values. It is well recognized that the large stretch of the Atlantic shoreline that would be impacted by a spill or permitted dumping at sea represent valuable economic resources with regard to both tourism and fisheries. The location of recreational beaches (Atlantic City, New Jersey) only 105 nautical miles from the dump site raises serious concerns about potential impacts. Yet, no evaluation has been prepared on potential impacts on esthetic, recreational and economic values resulting from either the impacts of spills along the transportation route or the dumping activities.

Section 227.18 of the ocean dumping regulations sets out with specificity the factors to be considered in this analysis, including, nature and extent of present and potential recreational and commercial use of areas which might be affected by the proposed dumping; existing water quality, and nature and extent of disposal activities in the areas which might be affected by the proposed dumping; visible characteristics of the materials which result in an unacceptable nuisance in recreational areas;

presence in the materials of pathogenic organisms that might adversely effect fisheries and shell fisheries; presence in the materials of toxic chemical constituents which may affect human health; presence in the materials of chemical constituents which may bioaccumulate; and presence in the materials of constituents that might significantly affect living marine resources of recreational or commercial value. EPA has not undertaken such an assessment, which is necessary to adequately evaluate the acceptability of the dumping activity.

NOAA's 106-Mile Update indicates that dumping activities may indeed interfere with fisheries. NOAA concludes that "it is clear the PAI as it extends onto the continental shelf is an important fish production area contributing significantly to the stocks supporting the commercial and recreational fisheries of the adjacent coastal states."[25] As one example, the larval stages of bluefish, the most important recreational fishery on the East Cost, occur in slope waters, including the area of the 106-Mile dumpsite. NOAA states that "it is clear that [bluefish] occupy waters potentially influenced by dumping at the 106-Mile Site during the vulnerable early part of their life cycle." [26]

Figures 2 and 3 graphically demonstrate the proximity of valuable fishing grounds to the dumpsite. Figure 2 shows the distribution of the lobster and red crab fisheries within the PAI, while Figure 3 shows the location of the biologically productive offshore canyons which serve as habitats for a number of commercially important fisheries, including tilefish and lobster. While these areas are depicted as "New Jersey's commercial fishing grounds" and "New Jersey's offshore sportfishing grounds," fishermen from Rhode Island to North Carolina -- and in the case of the sport fishing areas, fishermen from all over the United States -- use these fishing grounds. As such, it is not just the economy of New Jersey, but a much broader sector that is at stake. Adverse impacts in the PAI could have serious, far-reaching effects on these important fisheries.

Absent an EIS to provide adequate consideration of these factors, the requirements of Section 227.18 have not been satisfied. The 106-Mile update indicates the value of the big-game fishery in New Jersey alone to be approximately $73 million and emphasized the magnitude and importance of this offshore fishery and the impact any adverse changes in distribution and/or abundance of tunas and billfishes would have on the fishery.[27]

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[25] Id. at vi - vii.

[26] Id. at 7-9.

[27] 106-Mile Update, at xxiv.

Both tuna and billfish are known to frequent the area near the dump site.[28]

The broader impacts of the dumping activity on commercial fisheries within the PAI must be considered. The 106-Mile Update indicates that the tilefish fishery is already under stress (presumably due to fishing pressure) that could be exacerbated by adverse impacts of dumping. Further, NOAA suggests a foreign fishing fleet associated with the PAI worth approximately $8.7 million and notes recent U.S.-foreign joint fishing ventures that could be adversely impacted by waste disposal at the 106-Mile Site.

Clearly, a more careful evaluation is needed of potential impacts on other uses of the ocean based upon sound scientific fact. The preparation of an EIS which includes a more comprehensive evaluation of impacts (including potential impacts along the sea transportation route), and which recognizes scientific uncertainties that currently exist with regard to fate and effect of sludge constituents, would go a long way toward providing the necessary analysis. Given the difficulty of monitoring at the proposed dump site, and the absence of an evaluation of potential effects on esthetic, recreational, and economic values and other uses of the ocean, the use of the 106-Mile Site for the proposed dumping is inappropriate.

C. Continued Dumping of Sewage Sludge at the 106-Mile Site Violates other Federal Statutory Requirements

1. NEPA Requirements

EPA has failed to prepare an environmental impact statement (EIS) for ocean dumping of sludge at the 106-Mile Site, including the transportation of the waste, as required under the National Environmental Policy Act of 1969 (NEPA), as amended, 42 USC 4321 et seq. Under NEPA, an EIS is to be included in every recommendation or report on proposals for legislation and "other major Federal actions" significantly affecting the quality of the human environment. [29] The issuance of an ocean dumping permit is customarily accompanied by the preparation of an EIS.

EPA can not rely on the 106-Mile Site EIS and the 106-Mile Update as a basis for sludge dumping because those documents do not give consideration to potential environmental risks resulting from environmental impacts of the particular waste sought to be

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[28] Id. at vii.

[29] 42 U.S.C. 102(2)(C).

dumped and transportation of the waste 100 miles off the Atlantic Coast. It is critical that a worst case analysis be prepared so that the risks are understood. EPA can then weigh such risks fairly against any potential benefits it might perceive.

The U.S. Supreme Court has stated that an EIS is only the "outward sign that environmental values and consequences have been considered." Andrus v. Sierra Club, 442 U.S. 347, 350 (1979). Ultimately, what NEPA seeks are environmentally better agency decisions. The EIS was not intended by Congress as an end in itself, but rather, as the CEQ regulations state (40 CFR Section 1500(1)(c)):

> The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.

With that broader purpose in mind, preparation of an EIS by EPA would demonstrate the Agency's commitment to NEPA principles.

2. Endangered Species Act Requirements

Under the Endangered Species Act (ESA), 16 U.S.C. Section 1631 et seq., every federal agency has an obligation to insure that its actions are not likely to jeopardize the continued existence of any endangered species or destroy or modify its habitat.[30]

A determination that ocean dumping activities at the 106-Mile Site will not affect any endangered or threatened species is virtually impossible to make because the impact of the dumping on marine mammals, turtles, and birds is difficult to predict, and the residence times of marine mammals at the site and in the

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[30] Section 7(a)(2) of the ESA provides that (16 U.S.C. 1536 (a)(2):

> Each Federal agency shall, in consultation with and with the assistance of the Secretary [of Commerce or Interior], insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species....In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.

PAI are not well documented. Current knowledge suggests, however, that many species of marine mammals, turtles, and birds, including endangered and threatened species, spend significant parts of their lives in the potential area of impact.

As noted in the 106-Mile Update,[31] species of marine mammals recorded in the PAI throughout the year include: bottlenosed dolphin, Tursiops truncatus; grampus, Grampus griseus; pilot whales, Globicephala spp.; sperm whale, Physeter macrocephalus; minke whale, Balaenoptera acutorostrata; and fin whale, B. physalus. Spotted dolphins, Stenella spp.; white-sided dolphin, Lagenorhynchus acutus; sei whale, B. borealis; humpback whale, Megaptera novaeangliae; and beaked whales (Ziphiidae) were found seasonally. Humpback, fin, sei, and sperm whales are endangered species. Loggerhead turtles, Caretta caretta, which are threatened species, and leatherback turtles, Dermoschelys coriacea, which are endangered, were also found in the area. In addition, a total of 27 species of seabirds have been recorded in the PAI.

The estimated incidence of all endangered whales in the North Atlantic is over 3400 in the spring and summer months, over 1700 in the winter, and over 800 in the fall.[32] Threatened loggerhead sea turtles are most abundant in the summer when the population is estimated at an impressive 10,912.[33] An estimated 2000 loggerheads are present in the spring and fall as well.[34]

The 106-Mile Update states:[35]

> Sightings of cetacean and turtle species suggest considerable movement into and out of the 106-Mile Site's PAI seasonally. Although several species can be seen in the area throughout the year, individual residence times could not be determined from available data.

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[31] 106-Mile Site Update, at xxvii - xxviii.

[32] EPA, Marine Operations Division, Office of Marine and Estuarine Protection, "Assessment of the Impact of Incineration of Chemical Wastes in the Proposed North Atlantic Incineration Site on Endangered and Threatened Species," July 9, 1985, at 41, 43, 45, 47, 49 and 52.

[33] Id., at 36.

[34] Id.

[35] Id. at xxviii.

No efforts have been made to determine the potential impact of sewage sludge dumping on marine mammals, turtles and birds. However, NOAA's 106-Mile Update suggests the potential for impaired breeding performance or adverse impacts on long-term survival resulting from direct physical contact or contamination of food sources (food chain related effects).[36] However, NOAA has suggested that "[a] better understanding of food habits in relation to prey availability is needed for a thorough evaluation of residence time and food chain related effects caused by excessive burdens of pollutants from dumping."[37]

EPA's Final Environmental Impact Statement (EIS) for the 106-Mile Site[38] noted the presence at the site of a range of whales and turtles, some of which are rare or endangered, but stated that "...disposal activities at the 106-Mile Site would not obstruct migrations nor harm these animals in any foreseeable way since, as migrants, they would only be in the site a few hours, at most, and would tend to avoid dump vessels."

The lack of information concerning residence times in the PAI and the 106-Mile Site itself suggests that the assumption that these animals merely use the PAI for migratory purposes is speculative at best. Indeed, new evidence suggests, for example, that the Mid-Atlantic region "may be an area of considerable importance to the life cycle of the sperm whale."[39]

In sum, absent adequate data about the residence time of marine mammals, turtles, and seabirds in the PAI, and in light of the uncertainties about potential impacts of sludge dumping on these creatures, a determination that the proposed dumping activity will have no impact on endangered species in the area is clearly erroneous.

It is therefore critical that the appropriate regional office of the National Marine Fisheries Service and the Fish and Wildlife Service prepare biological opinions for assessing future permits for sludge dumping at the 106-Mile Site.

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36 106-Mile Site Characterization Update, at 11-19.

37 Id.

38 EPA, EIS for 106-Mile Site, supra, note 22 at 3-7.

39 McKenzie, Tracey, and John Nicolas, "Cetaceans, Pinipeds and Sea Turtles," Draft, NMFS, Northeast Fisheries Center, Habitat Conservation Branch, 1985.

D. Land-Based Alternatives Exist for Management of Sewage Sludge

Both the London Dumping Convention and the Ocean Dumping Act require a finding of need before ocean dumping is allowed. Existing regulations under the Act interpret the needs determination as requiring a comprehensive evaluation of potential reduction, treatment, and disposal options for the waste proposed for dumping (227.14 - 227.16). Currently, a permit for ocean dumping in the U.S. will be issued only upon demonstration that:

> [t]here are no practicable improvements which an be made in process technology or in overall waste treatment to reduce the adverse impacts of the waste on the total environment...

and

> [t]here are no practicable alternative locations and methods of disposal or recycling available, including without limitation, storage until treatment facilities are completed, which have less adverse environmental impact or potential risk to other parts of the environment than ocean dumping...

Also under existing U.S. regulations, permittees may:[40]

> be required to terminate all ocean dumping by a specified date, to phase out all ocean dumping over a specified period or periods, to continue research and development of alternative methods of disposal and make periodic reports of such research and development in order to provide additional information for periodic review of the need for and alternatives to ocean dumping....

The existing regulations reflect the spirit in which the Ocean Dumping Act was enacted. The intent is to ensure that the use of ocean dumping will not impede the development of better solutions to waste disposal. This goal is achieved by strictly limiting the use of ocean dumping when environmentally acceptable methods for reduction, treatment, and disposal are available on land.[41]

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[40] 40 CFR 227.16(c).

[41] Section 2(b) of the Ocean Dumping Act, Public Law 92-532, October 23, 1972, states (emphasis added):
(Footnote continued on next page)

This same spirit is reflected in the needs determination required under the LDC, which states that before any permit for dumping may be issued, the permitting authority must consider "[t]he practical availability of alternative land-based methods of treatment disposal or elimination, or of treatment to render the matter less harmful for dumping at sea."[42] Thus, like the existing ocean dumping regulations, the LDC maintains a presumption against ocean dumping in favor of practicable alternatives.

This legal requirement for a demonstration of need for ocean dumping of sewage sludge has not been met by those who propose to continue dumping at the 106-Mile Site. Indeed, over 200 sewage treatment plants which had used the 12-Mile Site ceased ocean dumping and implemented land-based methods by December 31, 1981. Such methods include creating compost or fertilizer from sludge, or dewatering and landfilling sludges. Other less preferred alternatives include incineration of sludge or co-incineration of sludge and solid waste.

1. The Need for Pretreatment and Industrial Waste Reduction

A major obstacle to alternative uses for sludge which is currently ocean dumped is the high level of heavy metals and other toxic contaminants which are present in the sludge at issue. The characteristics of any particular sludge depends upon the kind and quantity of inputs to the treatment plant (including urban runoff and industrial waste), as well as the process used by the plant and its efficiency. This points to the real problem at the heart of the current dilemma -- the failure of the subject municipalities to institute effective pre-treatment and industrial waste reduction programs. Neither ocean dumping nor any of the land-based alternatives are environmentally acceptable options for managing highly contaminated sewage sludge. Effective pre-treatment improves the quality of the sludge and must go hand-in-hand with any chosen management option, including ocean dumping.

(Footnote continued)

The Congress declares that it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

42 LDC, Annex III(C)(4).

Ideally, the normal process of treating sewage effluent concentrates toxic contaminants from the raw sewage into the sludge, creating a relatively clean effluent that may be discharged into inland and coastal waters with minimal adverse environmental consequences. To dispose of the contaminated sludge in the ocean defeats the purpose of its treatment to improve water quality.

The quality of the sludge is greatly improved when industrial pretreatment is rigorously pursued. Industrial pretreatment reduces the high concentration of heavy metals and synthetic organic compounds in the sludge by limiting industrial discharges into the sewage system. Pretreatment generates cleaner effluent and cleaner sludge, and the cleaner the sludge is, the greater are the number of alternative management options for dealing with it in an environmentally sound manner.

EPA is currently revising existing regulations to assure that hazardous wastes discharged to Publicly Owned Treatment Works (POTWs) are adequately controlled to protect human health and the environment.[43] Recent amendments to section 405 of the Clean Water Act (Section 406 of the Water Quality Act of 1987) direct EPA to promulgate final regulations which identify toxic pollutants of concern in sewage sludge and which set numerical limits and/or management practices for each pollutant identified.

In addition, pretreatment must be complimented with efforts to reduce the generation of industrial waste. Chemicals that are safer to dispose of from an environmental perspective are often available and can be substituted for more toxic chemicals. The use of these safer alternatives must be encouraged.

Further, a critical component of an overall scheme for managing sewage sludge is missing, i.e., sludge standards. Efforts are currently underway within EPA to develop regulations for each principal method for using and disposing of sewage sludge, including land application to food chain and non-food chain crops, distribution and marketing, land filling, incineration and ocean disposal. EPA and the states must adopt and enforce numerical- and toxicity-based standards for sewage sludge. Such standards should be stringent enough to produce sludge that may be applied to a full range of management alternatives.

Rigorous enforcement and monitoring of pretreatment or source reduction programs are essential if our goal of pollutant-

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43 "Approaches to Implementing the Recommendations of the Domestic Sewage Study," 52 Fed. Reg. 23477, June 22, 1987.

free sludge is to be achieved. Although pretreatment was mandated by Congress in 1972, regulations were not finalized until 1981, and those regulations have yet to be widely implemented. Both sewer authorities and state environmental protection authorities must enforce pretreatment regulations against illegal industrial dischargers.

2. Ocean Dumping of Sewage Sludge Falls at the Low End of A Hazardous Waste Management Hierarchy

The management of sewage sludge should be viewed in the context of an overall scheme for managing hazardous waste. The environmental community generally subscribes to a hierarchy of waste management options which recognize that when toxic chemicals or heavy metals are introduced into the environment, inevitable risks are created. Risk minimization requires emphasis on reducing waste at its source, recycling and recovery, waste treatment and destruction. Disposal -- either in the ocean or on land -- is viewed as the least attractive, bottom tier approach. Every effort should be made to utilize waste management options that are higher in that hierarchy.

As regards the management of sewage sludge, two options falling at the higher end of the waste hierarchy which offer beneficial uses of the sludge deserve special mention, i.e., use of sludge for generating fertilizer or compost.

(a) Sludge as Fertilizer

After sludge is treated in both primary and secondary treatment, it can be processed further in digesters (underground tanks where solids are heated to 95 degrees F, mixed continuously and deprived of oxygen). While in the digester, bacteria decompose human fecal wastes, ground food from garbage disposals, and reduce waste concentrations from industries. The resultant organic, sludge slurry can be used as a fertilizer for agriculture, forests, land reclamation, or land dedicated to sludge disposal. In the first three cases, sludge spread on the land improves the land by facilitating nutrient uptake, increasing water retention, permitting easier root penetration, and improving soil texture (reducing runoff and easing soil workability). In the fourth case, large quantities of sludge are applied over a land area for many years. This practice acts as a treatment system whereby soil is used to bind metals and soil microorganisms, sunlight, and oxidation to destroy the organic matter in the sludge. Approximately 25% of the nation's sludge is land applied today.

Despite its benefits, land application of sludge has its limitations as well. It may not be applied on all types of soil,

e.g., soils with a water table of less than two feet; soils subject to flooding and ponding, and very sandy soils. Strict regulations must be adhered to in land application of sludge to protect groundwater and to prevent adverse impacts from heavy metals or pathogens present in the sludge. In addition, the very strong odor emanating from most sludge is an important deterrent to its widespread use. Subsurface injection of sludge-based fertilizer provides a potential solution to the odor problem.

(b) Sludge as Compost

Sewage sludge may be transformed into compost by mixing it with an organic bulking agent, such as woodchips, saw dust, leaves, or straw. Compost differs from fertilizer in that the nutrient content of compost is low. It is therefore considered to be a soil conditioner rather than a fertilizer.

The process of composting takes place in reactor (enclosed) or non-reactor (aerated pile or windrow) systems. Reactor systems process the organic matter in structures such as silos, which protect the material from the elements and also contain odor. While many foreign countries utilize reactor systems, their high cost has limited the number found in the United States. One of the few full-scale sludge reactors in this country is located in Cape May, New Jersey.

Non-reactor systems, such as that located in Middletown Township, New Jersey, use static aerated piles in which aerobic conditions are maintained by blowing or drawing air through the pile. Non-reactor systems also employ windrows which are turned at regular intervals. While reactor systems are more expensive to construct and maintain, they hold the advantage of more reliably producing pathogen-free, non-odorous compost.

Regardless of how the compost is processed, its content must be strictly regulated for food-crop or non-food crop uses. It has been suggested that some of the sludge currently generated by New Jersey's ocean dumping sewage authorities may indeed be suitable for such land applications. It has been reported that an analysis of pollutants in the sludge that is routinely ocean dumped was performed for all data reported between September 1985 and September 1987.[44] The analysis revealed that the subject sludge achieved land application limits for most parameters.[45] Although additional parameters must be evaluated

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[44] Statement of Arnold Schiffman, New Jersey Department of Environmental Protection, before the New Jersey Senate Special Committee to Study Coastal and Ocean Pollution, September 15, 1987, at 7.

[45] Id.

to determine the suitability of the sludge for various land applications, it appears that alternative management options for the New Jersey sludge may be more feasible than anticipated. Similar information concerning the New York sludge does not appear to be available.

E. Enforcement and Monitoring

Until alternatives can be instituted, all sludge dumping operations must be strictly monitored and enforced. Recently, reports from commercial and recreational fishermen indicate that incidents of "short dumping" (dumping outside the 106-Mile Site) have been rampant. Mechanisms must be in place to prevent such illegal dumping activity.

The Coast Guard Mission Performance Standard for surveillance of ocean dumping activities requires that only 10 percent of sludge dumping activities be monitored under the Ocean Dumping Surveillance System.[46] That system requires that the vessels be equipped with so-called "silver boxes" that collect data on discharges from the vessels. This data is retrieved and evaluated after the fact to determine if compliance with permit requirements was achieved. We understand that by May 31, 1988, the Coast Guard expects that most of the potential 21 sludge dumping vessels will be equipped with "silver boxes" to monitor dumping operations. The placement of such boxes aboard ocean dumping vessels is the logical first step in our enforcement efforts.

In the meantime, at least 11 vessels engaged in sludge dumping activities in January of 1988 were not equipped with the silver boxes. These vessels operate virtually without surveillance. They are held accountable solely on the basis of reports submitted by the tug boat captains which include a description of their dumping activities, including their route to the site, the amount of sludge dumped and the location of the dumping activity. Under the circumstances it is impossible to verify officially reports of "short dumping."

Clearly, surveillance efforts must be increased. In 1986, in excess of 2500 transits to the 12- and 106- Mile sludge sites were conducted.[47] Because such surveillance efforts place an enormous burden on the Coast Guard, any increases in such

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[46] Telephone conversation between Sally Ann Lentz, Oceanic Society Staff Attorney, and Tom Riley, Captain of the Port of New York Compliance Branch Officer, February 12, 1988.

[47] Id.

efforts must be accompanied with increases in resources. Given the recent cuts in the Coast Guard's budget, the ability to maintain a high level of surveillance is greatly diminished.

We understand that preliminary discussions have taken place between representatives from EPA, NOAA and the Coast Guard to consider the use of satellites for monitoring environmental parameters at the dump site and to provide more effective surveillance. Such a system would use remote capabilities transmitted in a real time basis by satellite. The satellite would pick up data from sensors installed on the vessels and would feed that data back to a shore facility. The transmitted data would enable enforcement authorities to determine immediately if discharges were occurring outside of the designated site, and to determine the rate of discharge. Such a system would greatly enhance enforcement capabilities.

In addition, the satellite could identify the existence of warm core eddies in the area of the 106-Mile Site (mentioned above) that might circulate sludge materials onto the shelf or near shore. Dumping activities could be suspended pending the dissipation of those eddies as a mitigation measure.

Although the Coast Guard is making a good start by equipping the sludge dumping vessels with silver boxes to monitor location, this is only a first step. A satellite approach such as that described above offers the distinct advantage of identifying a permit violation at the time of its occurrence. Once the violation is identified, intervention steps can be taken to terminate further illegal dumping operations.

The same satellite data gathering system could also be used to conduct environmental monitoring of the site, as part of a full scale monitoring program. Environmental monitoring is critical to ensure that dumping is terminated at the first sign of any significant adverse environmental impacts.

F. Legislative Initiatives

Congressional action is sorely needed to put an end to ocean dumping of sewage sludge. As noted above, we strongly support the efforts of Senator Lautenberg to address sewage sludge concerns through introduction of S. 2030. As drafted, S. 2030 directly responds to the decision rendered in City of New York v. EPA by defining sewage sludge without reference to its effect on the marine environment. For the various reasons given earlier, our Environmental Coalition would strongly prefer that sewage sludge dumping at the 106-Mile Site be prohibited now,

without further delay.[48] Nonetheless, some delay in ending ocean dumping -- either at the 106-Mile Site or at an alternative site east of the Gulf Stream -- may be merited to enable the current dumpers to develop appropriate alternative means of handling their sewage sludge.

Aside from our broader concerns about continued use of the 106-Mile Site, a major loophole in S. 2030 threatens to undermine the intent of that legislation to close the door on ocean dumping in the North Atlantic. S. 2030 specifically prohibits dumping of sewage sludge after December 31, 1991 "into ocean waters designated as the 106-Mile Site...." The specific reference to the 106-Mile Site inappropriately leaves open the possibility for ocean dumping to occur at some other ocean location in the North Atlantic or elsewhere. This loophole should be closed.

In addition, although S. 2030 provides for periodic reports on progress made to terminate dumping, such reporting requirements could be substantially strengthened by mandating the development of specific schedules for phasing in of alternative land-based options. These schedules should include periodic goals for reductions (in volume) of sewage sludge which is ocean dumped, improvements in the quality of sludge --due to stepped up efforts at pretreatment and industrial waste reduction -- and time plans for construction of alternative treatment facilities. Such schedules would provide a realistic plan for achieving the 1991 deadline, and would also provide a genuine measure of progress in the interim.[49]

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[48] The Atlantic Offshore Fishermen's Association, for example, believes that all ocean dumping should be terminated immediately. Further delays, given repeated warnings of the need to stop such dumping that date back to at least 1970, will only result in further damage to the marine ecosystem and its living resources.

[49] In important respects, identical bills introduced by Senator Roth on February 17, 1988 (S. 2066) and by Representative Schneider on February 9, 1988 (H.R. 3938) address our concerns regarding the need for compliance schedules. Those bills improve upon S. 2030's provisions by (1) banning sewage sludge dumping as of December 31, 1988, (2) requiring that any dumping thereafter be conditioned upon schedules (pursuant to an EPA approved compliance agreement) that specify the various activities necessary for timely implementation of an alternative system, and (3) establishing stiff fines for failure to comply with those schedules. They also contain language which appears preferable to S. 2030 in certain other respects, by (1) specifically amending Section 104A(b) of the Ocean Dumping Act, rather than merely adding a new concluding section, and (2) by even more precisely defining sewage sludge in a manner that addresses the concerns at issue in City of New York v. EPA.

Last year Congress enacted legislation providing for the development of a New York Bight Restoration Plan and authorized 3 million dollars over a three-year period toward that end.[50] However, the continued dumping of sewage sludge in the North Atlantic threatens to undermine all attempts to successfully restore the New York Bight. The termination of sewage sludge dumping is a critical part of any plan to restore the area, and is one course of action that should be pursued immediately.

III. Dredge Spoil Dumping

In sheer volumes of materials that are ocean dumped, dredge spoils constitute the largest single source, with approximately 300 million cubic yards of sediment being removed each year in the United States alone.[51] The Office of Technology Assessment (OTA) estimates that "[a]bout 180 million wet metric tons of dredged material are dumped annually in marine waters."[52] OTA reports that of this amount, almost two-thirds is dumped in estuaries, one-sixth in coastal waters within the territorial boundary, and one-sixth outside the territorial boundary.[53] The majority of these materials, generated from routine maintenance of river and harbor channels, can be dumped at over 130 licensed ocean dumpsites.[54] However, twenty-four sites receive about 95 percent of all ocean dumped dredge spoil.[55]

While sludge dumping occurs in the Mid-Atlantic, the effects of dredge spoil dumping are being felt on all U.S. coasts. In 1983, the Gulf of Mexico received 65 percent of all

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[50] United States-Japan Fishery Agreement Approval Act of 1987, Subtitle C, New York Bight, Sections 2301 - 2305, Congressional Record, H 11737 - 11738, December 18, 1987.

[51] U.S. Department of Commerce, NOAA, "Marine Environmental Assessment, Southeastern United States, 1986 Annual Summary," Washington D.C., September, 1987, at 120.

[52] OTA Report, at 14.

[53] Id.

[54] Millemann, Beth, And Two If By Sea, Coast Alliance, 1986, at 66.

[55] OTA Report, at 237.

dredge spoil, the Atlantic coast received 22 percent, and the Pacific coast received 13 percent.[56]

The Water Resources Development Act of 1986 constitutes the first major deepwater port authorization to be enacted since 1976, and opened the way for significant port development and expansion. This development, coupled with the Navy's extensive "homeporting" initiative to accommodate an expanded 600-ship Navy, is expected to significantly increase the volume of dredge material requiring disposal over the next decade.

A. Environmental Effects

Because dredging operations most often involve the removal of surficial sediments, the dredge spoils consist primarily of "clays and silts, with lesser amounts of sand, and a moderate to high water content and organic fraction."[57] However, dredge spoil often contains highly toxic pollutants as well, including heavy metals (e.g., cadmium, chromium, copper, iron, lead, mercury, nickel,silver), PCBs, DDT, PAHs, pesticides, nutrients, pathogens, and oil and grease.[58]

The environmental effects of dumping dredge material in the ocean will depend on whether the material is contaminated, as well as the location of the dumping activity. The effects of dumping uncontaminated dredge spoil are generally limited to physical impacts on bottom dwelling (benthic) organisms. These organisms will die from physical burial or suffocation. Recolonization at the site will occur once the dumping has been stopped, but it may take at least several months to as much as several years to restore the benthic communities at the sight. However, continued use of a sight or the dumping of large volumes of material may cause irreversible damage. Such was the case of a quahog fishery off the coast of Narragansett, that was permanently destroyed by dumping of dredge material.[59] It has been reported that "[i]n eastern Florida, dredging for shipping and beach nourishment is believed to have destroyed reef habitat from burial and siltation."[60]

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56 Millemann, at 67.

57 Marine Environmental Assessment, at 120.

58 Millemann, at 67, and OTA Report at 242.

59 OTA Report, at 237.

60 Marine Environmental Assessment, at 123.

The disposal of contaminated dredge spoil poses more serious problems. The toxic components of the material have the potential to adversely impact organisms throughout the water column as well as on the ocean floor. Marine organisms may suffer both lethal or sublethal effects, or may bioaccumulate these pollutants and transfer them up the food web.

One important difference between sludge dumping and dredge spoil dumping is that the widespread dispersion of sludge which is ocean dumped enhances its bioavailability. When dredge material is ocean dumped, much of the mass load of contaminants is sequestered in a mound where it is dumped and thus is thought not to be as readily available to biota.[61] It is also believed that heavy metals are tightly bound to the clays and organic matter in dredge material, which makes them less likely to be released in the water column.[62]

The adequacy of current test standards for determining whether dredge material will unreasonably degrade the marine environment has been seriously questioned. These include bulk sediment composition analyses, elutriate tests and bioassays.[63] Criticisms of these standards were stated by OTA:[64]

> For instance, bulk sediment composition analyses do not necessarily indicate the likelihood that pollutants will be released from the sediment to the water column or whether they will be taken up by marine organisms. Laboratory bioassays do not indicate which pollutants are responsible for any observed effects nor can they detect long-term, chronic effects, and bioaccumulation tests do not necessarily indicate whether further effects will occur.

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61 Anderson, Dr. Peter W., Statement for the Public Hearing on the Tentative Denial to Redesignate the 12-Mile Sewage Sludge Dump Site.

62 OTA Report, at 246.

63 Bulk sediment composition analyses indicate the concentrations of pollutants that are present in the dredged material. Elutriate tests indicate the degree to which different pollutants might be released to the water column during disposal. Bioassays indicate the potential "acute" toxicity (or lethality) of pollutants to organisms, over a period of 2 to 60 days.

64 OTA Report at 247.

In addition, it has been suggested that the absence of established "sediment quality criteria" is a major deficiency for determining the acceptability of any material for ocean dumping. Such criteria, however, could be used to assess the degree of contamination of the dredge spoils and whether it is acceptable to release them into the marine environment.

B. Regulatory Authority for Dredge Spoil Dumping

The permitting authority for ocean dumping of dredge spoils under the Ocean Dumping Act rests largely with the Army Corps of Engineers. Permit applications are evaluated on the same basis as other ocean dumping permits under EPA regulations. Under ocean dumping regulation 220.4(c), EPA agreement that a proposed permit meets the established criteria is required before the permit may be issued. Where EPA does not approve a permit, and the Corps of Engineers finds that there is "no economically feasible method or site available" other than the proposed site, the Corps may request a waiver by the EPA Administrator. The waiver must be granted unless EPA determines that dumping of the material will result in unreasonable degradation of municipal water supplies, shellfish beds, wildlife, fisheries or recreational areas. (Section 103(d) of the Act).

Site selection for dredge disposal dumping is primarily the responsibility of EPA. However, where EPA has not designated a site recommended by the Corps, and the use of an already designated site is not feasible, the District Engineer shall consult with EPA to select a site in accordance with established site selection criteria. (Section 228.4(e) of ocean dumping regulations).

C. Status of Interim Sites

When the ocean dumping regulations were promulgated in 1977, EPA designated 13 interim non-dredge material sites and 127 interim dredge material sites. These interim designations were challenged in a suit by the National Wildlife Federation (NWF) against EPA (National Wildlife Federation v. Costle, 14 ERC 1600 (1980). The basis for the suit was that the interim designations improperly allowed the use of sites that had not been evaluated under the established criteria for designating sites. It was suggested that the use of the sites be suspended pending completion of the requisite site analyses. The Court ruled in favor of EPA. However, EPA and NWF entered into a consent agreement, whereby EPA would complete 22 EISs for 47 sites to ensure expedited designation or de-designation. EPA agreed to complete all proposed final designations by March, 1983. As of September, 1986, final action had been taken on only 21 of the 47

sites.[65] Draft EISs were prepared for 21 of the remaining 26 sites.[66] (See Tables 1 and 2). Legislative action is needed to prohibit EPA from using "interim" sites which have not been properly designated.

As with other materials that are currently ocean dumped, there are land-based options available for dealing with dredge materials. Both contaminated and uncontaminated material can be physically contained in "upland containment areas" which are designed to prevent the release of metals or other contaminants into the environment. Such disposal holds an advantage over ocean dumping because "it allows greater management and control than is possible in marine environments."[67] Uncontaminated dredge material can be used for beneficial uses as well, such as beach replenishment.

D. San Francisco Bay -- A Case Study

Some of the problems associated with dredge spoil dumping are illustrated by a current proposal to dispose of dredge material in San Francisco Bay. Dredge spoils generated from dredging activities in Oakland Inner and Outer Harbors are proposed to be dumped at an existing dredge spoil dumpsite (the Alcatraz Site) and at another site in San Francisco Bay (the Proposed Site). It has also been proposed that existing materials from the Alcatraz site be re-dredged and disposed of at the Proposed Site to make room for the new dredge material.

On November 18, 1987, the Oceanic Society commented on the Corps' Supplemental Environmental Impact Statement (SEIS) and Notice of Intent to Use Ocean Disposal Site.[68] We raised several concerns regarding the proposal:

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[65] EPA, Office of Marine and Estuarine Protection, "Ocean Dumping Site Designation Delegation Handbook for Dredged Material," 30 September 1986, 1-6 - 1-8.

[66] Id.

[67] OTA Report, at 249.

[68] November 18, 1987 letter from Mary Barber, Oceanic Society Staff Scientist, to Alan Remo, Citizens For A Better Environment, Re: SEIS to Draft Oakland Inner and Outer Harbors Deep-Draft Navigation Improvements Memorandum, submitted to Army Corps of Engineers as Appendix F of November 20, 1987 Comments on behalf of Citizens For A Better Environment, Save San Francisco Bay Association, and Oceanic Society.

- o Resuspension of materials at the Alcatraz Site and replacement with an additional 7 million cubic yards of slurried sediments will result in an increase in water turbidity. The consequential loss of light is likely to have adverse impacts on phytoplankton at the base of the food web, resulting in seriously reduced fishery production.

- o The waters of San Francisco Bay are already stressed, and are extremely sensitive to any additional pollutant burden. This makes dredge spoil dumping in the Bay environmentally unacceptable.

- o Sediment testing and bioassays performed on the dredge material indicate that much of that material carries a contaminant load that is biologically significant. Disposing of such material in the Bay poses a serious danger to fisheries.

- o The Corps did not adequately consider alternative disposal options, particularly marsh building and upland sites. That portion of the dredge material that is "clean" may be suitable for marsh building or beach replenishment. Contaminated materials should be considered for upland containment areas.

- o The Corps improperly dismissed consideration of sites beyond the Continental Shelf, which sites are required to be used under the Ocean Dumping Act. The Corps' suggestion that monitoring of such sites would be virtually impossible is unfounded. The Coast Guard's Ocean Dumping Surveillance System (ODSS) could be employed at such sites.

- o The proposed site is only 1.7 nautical miles from the Farallones National Marine Sanctuary, posing an unacceptable risk to marine life at the Sanctuary.

- o A monitoring plan for the proposed dump site, including the methodology and philosophy underlying the plan, has not been adequately described.

Clearly, the concerns we have raised suggest that the considerations and evaluations required under the Ocean Dumping Act and the ocean dumping regulations are not being undertaken. The strength of any law or regulation is dependent upon the extent to which it is properly implemented. It appears that one of the major problems we face is rigorous implementation of the

existing law. This problem applies to all ocean dumping -- not only dredge spoils.

IV. Industrial Waste Dumping

As with sewage sludge dumping, ocean dumping of industrial waste preceded enactment of the Ocean Dumping Act. Industrial waste has been ocean dumped at the 106-Mile Site since 1961.[69] The largest volumes of waste were dumped in the early 1970s (almost five million metric tons annually). While ocean dumping of sewage sludge has increased over the years, industrial waste dumping has steadily decreased to about 200,000 metric tons annually.[70] Whereas over 300 companies were ocean dumping their wastes at one time, that number had decreased to three in 1987.[71] Currently, Allied Chemical continues to dump approximately 40,000 metric tons of acid waste at the New York Bight Acid Waste Disposal Site. The Allied Chemical permit expired September 30, 1987. The company may submit an application to renew the permit by April 3, 1988. Du Pont Company has a permit pending to continue dumping approximately 50,000 metric tons of aqueous acid iron waste at the 106-Mile Industrial Waste Site.

The tremendous progress that has been made to dramatically reduce the amount of industrial waste that is ocean dumped is said to be threatened by closing off of some land-based options for managing this waste.[72] Just when we are near to achieving total elimination of ocean dumping of industrial waste, there may be increasing pressure to turn back to the ocean as the cheapest, most convenient option for disposing of industrial waste. There may also be increasing pressure to turn to the ocean for disposal of coal ash and flue gas desulfurization sludges generated by coal burning electric utilities and industrial boilers.[73] These wastes are known to contain heavy metals and pollutants, which are trapped in the sludges and ashes to reduce air pollution. The pressure to shift pollutants from one media to another must be strongly resisted.

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69 OTA Report at 23. The Industrial Waste Dump Site is located about 10 nautical miles west of the sewage sludge dumpsite. OTA Report, at 67.

70 Id.

71 OTA Report, at 67.

72 OTA Report, at 257.

73 NOAA's National Marine Pollution Program, at 127.

A. Environmental Effects

Permits for ocean dumping of acid waste have been based on the assumption that the acid content of the waste will be rapidly neutralized (within 4 hours of discharge) and that effects will be short lived and limited to the immediate vicinity of the site. This assumption does not account for the repeated destruction of marine organisms that will undoubtedly be destroyed in the immediate wake of the discharge before neutralization is complete. Nor does this assumption account for the effects of heavy metals (e.g., cadmium, mercury) and known carcinogenic or mutagenic material (e.g., arsenic, copper) which are present in much of the waste that is dumped. Indeed, ocean dumping of industrial waste is the suspected cause of the adverse impacts on copepod populations, fish eggs, and phytoplankton, which have manifested at the 106-Mile Site (described in detail in Part II(C)(2), above). The evidence suggests that continued dumping of industrial waste is environmentally unacceptable.

B. Land-Based Alternatives Exist For Managing Industrial Waste

As with any permit to ocean dump, permits for dumping industrial waste may be issued only upon a finding of need for the dumping activity. As noted in Part II(D), above, a demonstration of need requires a finding that no alternative land-based option is available for managing the waste. Such options are available for the wastes that are currently ocean dumped. The Allied Chemical waste, for example, can be sold for use as hydrochloric acid. Indeed, 10 percent of the waste was sold in 1984 and 6 percent was sold in 1985.[74] The Du Pont waste can be processed to produce marketable ferric chloride and recyclable hydrochloric acid. The company completely ceased ocean dumping while the market for ferric chloride was good. Greater competition in that market, however, has rendered that option less profitable, and the company now wishes to turn back to ocean dumping as the cheaper, more convenient option. That over 300 companies have succeeded in finding suitable land-based alternatives to ocean dumping, and that Allied and Du Pont have themselves developed alternatives for dealing with their waste, suggests little basis for continued ocean dumping of industrial waste.

V. Radioactive Waste Dumping

Title I of the Ocean Dumping Act also addresses dumping activities involving radioactive wastes. Under the Act, as well

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74 OTA Report, at 261.

as the London Dumping Convention, dumping of high-level radioactive wastes (HLW) is prohibited, while low-level radioactive wastes (LLW) can only be dumped under special permits. In addition, under amendments to the Ocean Dumping Act that were enacted in 1983,[75] additional regulatory requirements were added to address concerns related to a then-pending proposal by the U.S. Navy to scuttle obsolete nuclear submarines at sea. Of those requirements, one requires that any LLW permit application be accompanied by a "Radioactive Material Disposal Impact Assessment" that enumerates various environmental and economic factors that must be addressed, and another requires both houses of Congress to pass a resolution in support of any LLW preliminary permit approval given by EPA.

Beginning in the mid-1940s, low-level radioactive waste (LLW) was dumped at sea by the United States and several European countries. From 1946-1970, the oceans off our coastline were used as dumpsites for such wastes, with available records indicating that approximately 90,000 canisters containing an estimated total activity of nearly 100,000 curies were disposed of at sites in the Atlantic, Pacific and Gulf of Mexico. The United Kingdom (by far the largest dumper), Switzerland, Belgium and the Netherlands continued to dump LLW in the Northeast Atlantic site through 1982. However, since 1983 no LLW dumping at sea has occurred.

In 1983, the London Dumping Convention parties adopted a resolution that put in place a two-year moratorium on LLW dumping, internationally, pending completion of scientific studies assessing the risks of LLW dumping at sea. In 1985, the LDC parties revisited the issue, and adopted an indefinite moratorium on LLW dumping pending completion of a more comprehensive set of risk-related studies involving both scientific/technical and socio/economic factors.

While neither of these moratoria were or are legally binding, all the LDC parties have honored them. At present, the United States and other countries are participating in special meetings, information gathering and analyses designed to address the studies called for by the current indefinite moratorium. Our Environmental Coalition supports the moratorium and related LLW studies that have been mandated by the parties, and looks forward to continued collaboration with U.S. officials as studies, reports and U.S. positions are prepared for upcoming meetings under the LDC.

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[75] Amendments to Section 104, Public Law 97-424, 6 January 1983.

VI. Ocean Incineration

The London Dumping Convention and the Ocean Dumping Act treat ocean incineration as a form of ocean dumping, since toxic emissions from this process are likely to find their way into the marine environment. EPA has recently "suspended" its regulatory initiative to establish an ocean incineration program that would allow highly toxic wastes to be burned at sea. Our Environmental Coalition supports this decision, based upon the numerous scientific, technical and legal concerns that the Oceanic Society and others have raised before your full Committee in the past.[76]

While incineration of highly toxic waste at sea appears to have been shelved, there is growing interest in turning to ocean incineration for disposing of municipal waste. Industry views the New York metropolitan area as a prime market for this service. If such operations were permitted, it is likely that the New York Bight Apex and locations farther offshore of New York and New Jersey would be the first sites to be considered. Many of the same concerns regarding the risks associated with incineration of toxic waste would apply to incineration of municipal waste. No ocean incineration activities are permitted under the Act unless "need" is established. Since land-based options for municipal waste (e.g., landfilling, incineration) do exist, a demonstration of need is virtually impossible.

Since 1973, over 300,000 tons of wood wastes have been burned at an Interim Woodburning Site in the Atlantic Ocean, approximately 17 nautical miles off Point Pleasant, New Jersey. Woodburning continues at this site under interim permits that have been issued on an annual basis under the Ocean Dumping Act. The wood is transported to the site on flat-bed barges. Burning takes place in the open on the bed of the barge.

The ocean dumping regulations do not specifically address the practice of woodburning, and therefore there are no properly established federal controls governing this practice. In addition, although EPA has prepared a Draft Environmental Impact Statement for designation of a woodburning site in the New York

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[76] See, e.g., Testimony Of Sally Ann Lentz on behalf of the Oceanic Society, Before the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works concerning Incineration of Hazardous Waste at Sea, June 19, 1985.

Bight,[77] it has not been published for public review and comment. Because the wood that is burned at this site is contaminated with chemicals (primarily creosote) and metals, serious human health and environmental risks are posed by continued burning at the interim site. EPA has failed to provide the public with assurance that this practice is environmentally acceptable and does not present a human health risk.

VII. Conclusion

As we begin to redress the mistakes of the past in waste management, there is, for some, a desire to turn to the ocean to dispose of our waste. Contrary to the misguided philosophy of some decision makers in government and industry, though, the oceans are not the "out of sight, out of mind" solution to this serious and growing problem.

As noted at the outset of my testimony, ocean and coastal waters already are seriously degraded, and the problem is increasing. Leaving aside the serious adverse impacts to our oceans and coastal areas that can result from ocean dumping activities regulated under Title I of the Ocean Dumping Act, those areas are being threatened in ever increasing ways by vessel source pollution and by land-based sources of marine pollutants -- through pipeline discharges, urban and agricultural runoff, atmospheric deposition, debris and litter.

We must, and we can, take the necessary steps to solve the serious and growing problem of ocean and coastal pollution. However, if the shores of New Jersey and other coastal communities across the nation are to be saved, we must confront all sources of waste and we must act quickly. Our Environmental Coalition appreciates greatly the leadership role that you, Senator Lautenberg, and other Members and staff of these Subcommittees are taking to halt the contamination of our vital ocean and coastal resources. We look forward to working with you to achieve this objective.

Attachments

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[77] EPA, Region II, Draft Environmental Impact Statement for the Designation of an Ocean Woodburning Site for the New York Bight, January 1987.

Figure 1

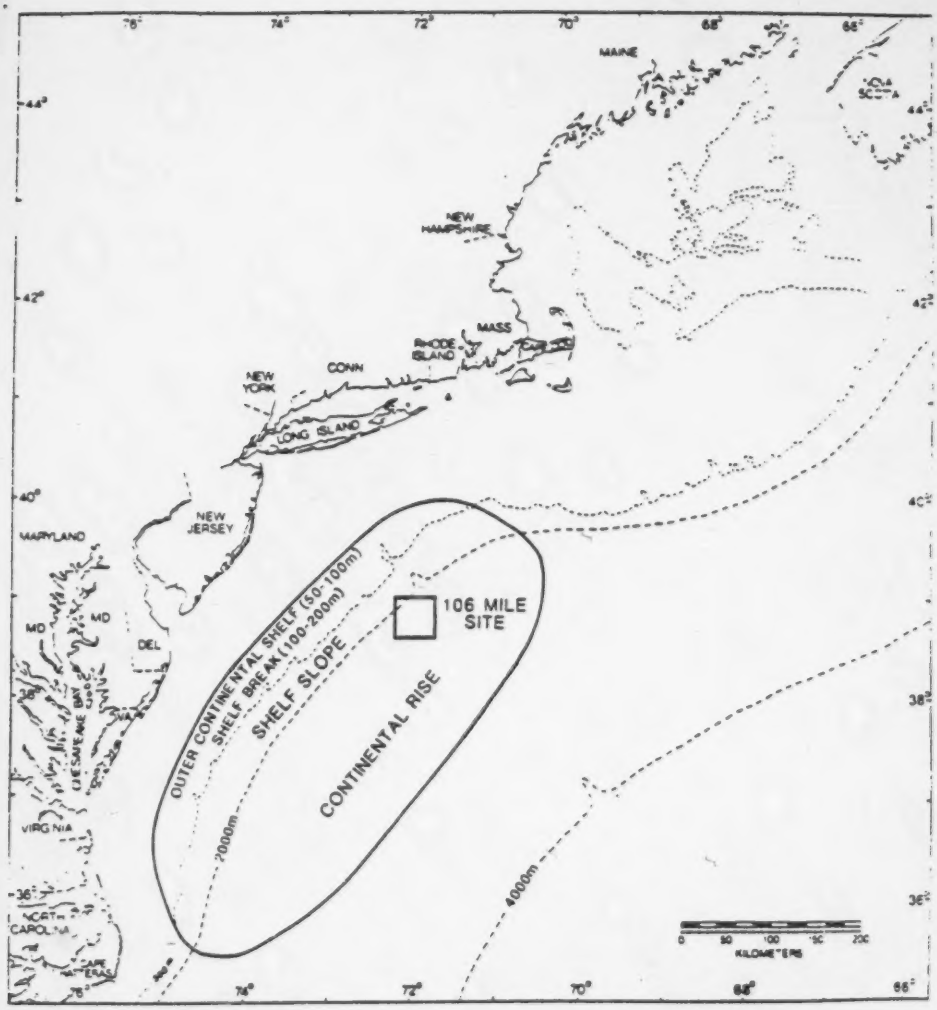
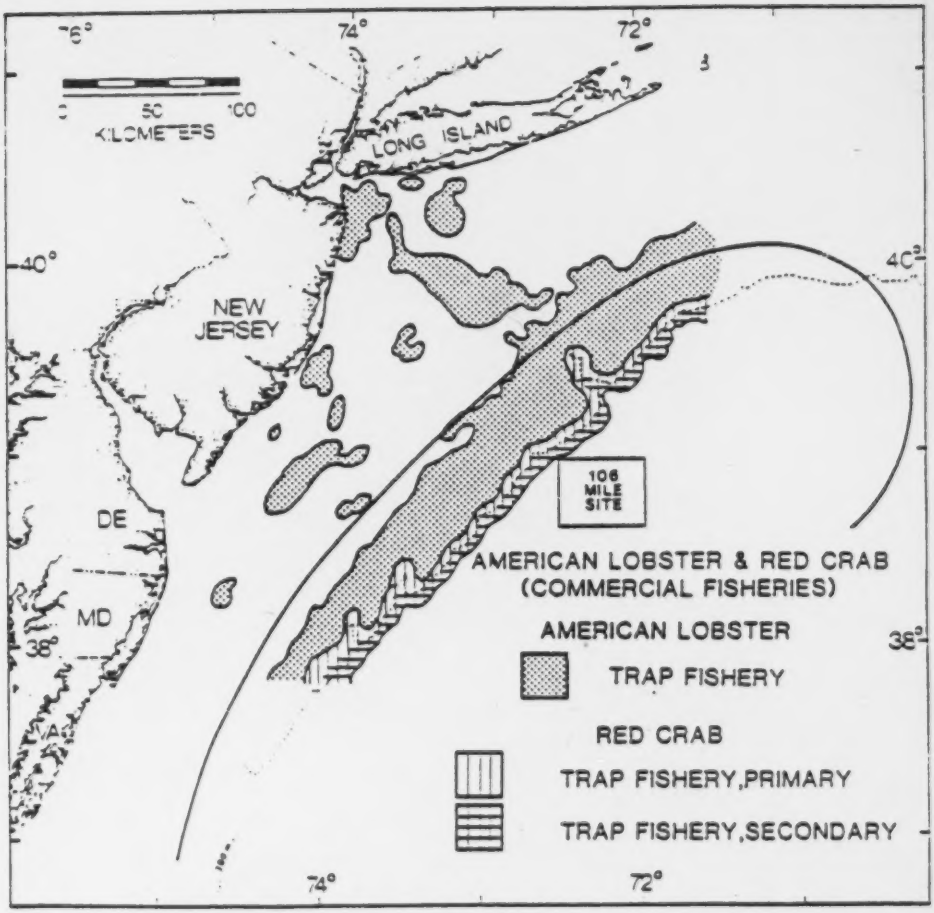


Figure 1. The 106-mile dumpsite, potential area of impact (PAI) and major bathymetric zones within.

Source: National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS - F/NEC - 26, August 1983.

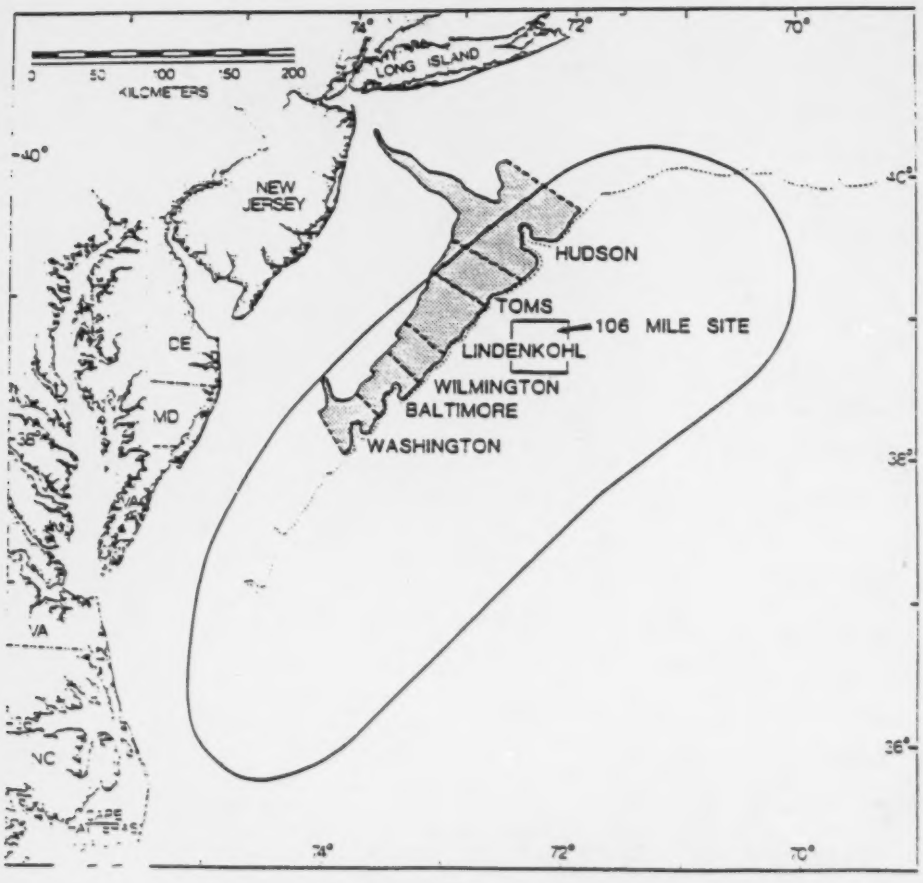
Figure 2



New Jersey's commercial fishing grounds for American lobster and red crab (Long and Figley 1981) including location of Deepwater Dumpsite 106 (DWD-106) and its potential area of influence (PAI).

Source: National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS-F/NEC - 26, August 1983.

Figure 3



New Jersey's offshore sportfishing grounds (shaded area) including locations of submarine canyons and Deepwater Dumpsite 106 (DWD-106) and its potential area of influence (PAI).

Source: National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS-F/NEC-26, August 1983.

Table 1

Current status of Consent Decree sites

Name of Site	Region	Initial Number of Interim sites	EIS	Rule
Portland, ME	I	1	Final	Draft
NY Mud Dump, NY	II	1	Final	Final
NY, Long Island Inlet, NY	II	8	Draft	----
Vieques, PR	II	1	Final	.1
San Juan, PR	II	1	Preliminary	Draft
106 Mile Site, NJ	II	2	Final	Final
Acid Waste Site, NJ	II	1	Final	Final
Cellar Dirt Site, NJ	II	1	Final	Final
Jacksonville, FL	IV	1	Final	Final
Tampa, FL	IV	2	Final	Final
Pensacola, Gulfport, Mobile	IV	4	Draft	Draft
Wilmington, Charleston, Savannah	IV	3	Final	Draft
Galveston, TX	VI	1	Final	Final
Sabine-Neches	VI	4	Final	Draft
Hawaii	IX	3	Final	Final
San Francisco Channel Bar	IX	1	Final	Final
Humboldt Bay, CA	IX	1	Preliminary	—
San Diego	IX	2	Preliminary	—
Long Beach, CA	IX	1	—	—
San Francisco 100 Fathom	IX	1	—	.2
Columbia River, OR	X	5	Final	Final
Coos Bay, OR	X	2	Final	Final

1. Will not be designated.
2. Designation allowed to lapse.

Source: EPA, "Ocean Dumping Site Designation Delegation Handbook for Dredged Material," 30 September 1986

Table 2

Status synopsis for all dredged material ocean dumping sites

CONSENT DECREE

Region	Initial Number of Sites (Actual)/EIS	Sites with Draft EIS	Sites with Final EIS	Sites with Proposed Rule	Sites with Desig.	Sites Requir Final Desig.*
I	1 (1)/1	1	1	0	0	1
II	11 (11)/4	11	3	1	2	9
III	0 (0)/0	0	0	0	0	0
IV	10 (11)/4	11	7	3	3	8
VI	5 (5)/2	5	5	1	1	4
IX	9 (11)/6	6	6	6	7	4
X	7 (8)/2	8	8	8	8	8
		–	–	–	–	–
Total	43 (47)/19	42	30	19	21	26

NON-CONSENT DECREE

Region	Initial Number of Sites/EIS	Sites with Draft EIS	Sites with Final EIS	Sites with Proposed Rule	Sites with Desig.	Sites Requir. Final Desig. *
I	4/4	0	0	0	0	4
II	4/1	0	0	0	0	4
III	1/1	1	1	0	0	1
IV	30/24	2	2	0	0	30
VI	24/19	9	0	0	0	26
IX	10/9	0	0	0	0	7
X	14/12	1	2	0	0	14
		–	–	–	–	–
Total	86/67	13	5	0	0	86

NOTE: Numbers in parentheses refer to the total number of sites requiring designation after considering the increased or decreased number of sites as determined through the EIS process or including those sites that will not require site designation.

** Includes sites that will be designated, dedesignated, or cancelled, sites whose interim designation has expired or will be allowed to expire, and sites that will not be designated.*

Source: EPA, "Ocean Dumping Site Designation Handbook for Dredged Material," 30 September 1986.

TESTIMONY OF REPRESENTATIVE JAMES J. HOWARD
SUBMITTED TO THE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION AND THE SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, U.S. SENATE

FEBRUARY 18, 1988

Mr. Chairman, I wish to congratulate both of your for holding this hearing and considering this important legislation. Senator Lautenberg, you and our senior senator from New Jersey, Bill Bradley, deserve special credit for your efforts on S. 2030, which would close the 106-mile dumping site.

The water quality testing conducted by the New Jersey Department of Environmental Protection during the last two years has shown that we are making progress in the fight for water quality but we can and must do better.

The time has come for us to stop dumping sludge in the ocean. We have lived with this obnoxious, degrading process for too long. The dumpers have had ample opportunity to develop alternatives to ocean dumping and, in fact, many have already done just that. Let's set a date certain and tell the dumpers--No More. The people who live near the ocean, who use the beaches and fishing areas have had it with sewage sludge. Put your sludge somewhere else. Stay out of our ocean.

In the last few years, we have taken numerous steps to improve water quality at the New Jersey Shore. I have been working since 1974 to stop sludge dumping. Probably no action is as important for water quality as closing the 106-mile site -- there is no reason to keep dumping sludge in the ocean.

Our cooperative efforts have resulted in several major steps to protect the New Jersey Shore. Just one year ago, we passed over President Reagan's veto, the Water Quality Act which closed the 12-mile sludge dumping site at the end of 1987 and banned any new dumpers from using the 106-mile site.

In the Water Resources Act, we set a November, 1989 deadline for the closing of the Mud Dump site six miles east of Sandy Hook and the designation of a new site at least 20 miles off shore. There have been delays in moving this new designation forward. The EPA Regional Administrator has assured me there has been progress toward funding the necessary studies to move this operation.

We have authorized funding for the Harbor driftwood collection project in the New Jersey-New York area to remove the millions of rotting, useless timbers that litter the shorelines. These timbers are a threat to boaters, fishing vessels and swimmers and should be removed as soon as possible.

Additionally, we wrote into the Clean Water Act several major new programs to protect ocean water quality. We authorized a $48 million nonpoint management program to control runoff; included a 20 percent discretionary fund for combined sewer overflows and other problems; and we insisted on compliance with pretreatment deadlines.

While these important actions will play a role in improving water quality, it is time to take the next step. The sludge dumpers have been using the ocean since 1923. Congress voted 11 years ago to end sludge dumping. It is time to utilize proven alternative disposal methods.

This is not a jobs vs. the environment issue. Don't let anybody claim that it is too costly to find sludge dumping alternatives. Tourism is one of New Jersey's major industries. The economy of the New Jersey Shore depends on tourism and recreation. Without good

weather and clean water, there is no tourism and recreation. While I know the weather is not within your jurisdiction or mine, we can do something about water quality.

In 1977, when we first voted on this issue, there were 38 dumpers using the 12-mile site. Of those, 29 have found other methods of sludge disposal. I will submit for the record the methods that each of these communities is using for sludge disposal. Today, only nine authorities use the ocean. But they dump 8 million wet tons annually, including 55 percent of the sludge produced in New Jersey.

These authorities are now seeking three-year permits to use the 106-mile site. When asked by EPA for submissions on alternatives to ocean dumping, only Nassau County presented a plan for land disposal. New York City and Westchester County gave vague assurance about future study. To their discredit, the six North Jersey authorities did not even respond with a proposal.

Therefore, it is up to us to set a deadline for them. If the dumpers are confronted with a deadline for ending ocean dumping, they will seriously search for alternatives. If we don't act, these vague assurances about future study will continue indefinitely, and so will the dumping!

When the 106-mile site was designated for five years, it was clear to everyone involved that this was a temporary transition from the 12-mile site to land-based alternatives. It was made clear to the dumping authorities that they should consider land alternatives and not invest capital in the use of the 106-mile site. If they have invested, then I would say that is their own misjudgment.

Sludge dumping kills all marine organisms for several miles surrounding the actual dump site. In the five square miles west of the 12-mile site, there are no living organisms other than one species of worm. The few creatures that come near it are subject to fin rot, shell degeneration, gill fouling and parasitism. Sludge dumping has also contributed to depressed bottom oxygen levels.

The area surrounding the 12-mile site has been subjected to this treatment for 63 years. We have now moved this operation to the 106-mile site where it will remain until 1991. After that, it must be stopped.

If these authorities wish to keep dumping their sludge in the ocean until 1991, they should be forced to pay compensation for the environmental degaradation they are causing. I am drafting legislation that would impose a fee of $30 a ton on the sludge dumped at the 106-mile site. The revenue from that fee, which would be about $240 million annually, would fund a Coast Guard and Shore Protection Fund. Coast Guard enforcement, monitoring and other activities would be authorized to receive $200 million while EPA's New York Bight related activities would get the rest.

Mr. Chairmen, this type of fee is crucial to our efforts to end ocean dumping. As long as the initial cost of dumping is significantly less than land disposal, the dumpers will not seek other alternatives. As we know, those economic considerations do not include the cost of the great environmental harm they do. A $30 a ton fee would make the ocean a less attractive economic alternative. It would force the

dumpers to pay the cost of the Coast Guard operations that are necessary because of them and to provide money for environmental restoration. Let's make the dumpers pay.

Mr. Chairman, ending ocean disposal of sewage sludge is the right environmental course. We must take special care to protect our water resources. If we don't act in favor of clean water and clean oceans, we will make a decision that will have impact for years to come. We should not create another cesspool at the 106-mile site.

I urge your Committee to move this legislation quickly and send a clear signal that Congress is serious about ending ocean sludge dumping. We in the House are committed to moving as rapidly as possible on this legislation and I look forward to working with you on it.

29 Former Ocean Dumpers

Out of State (Landfill)

Asbury Park
West New York
Wood-Ridge
Neptune Twp.

Land Application

Philadelphia, Pa. - composting
Camden Co. MUA - Composting
Middletown Twp. - Composting
Bellmawr Bor.

Incineration (Own Facility)

Lincoln Park (Two Bridges Sewerage Authority)
Wayne Twp.
Atlantic City (Atlantic Co. UA)

Incineration (Customer)

Caldwell Bor.
Cedar Grove
Chatham Twp.
Kearny
N.E. Monmouth Reg.
Oakland Bor.
Passaic Twp.
Pequannock Twp.
Pompton Lakes
Roxbury Twp.
Totowa Bor.
Washington Twp. (Morris Co.)
West Paterson
Montville
Morris Twp.
Wanaque S.A.
Warren Twp.
West Milford

P.03

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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John C. Bryson, P. E.
Executive Director

12 February 1988

The Honorable Gerry E. Studds
United States Representative
1501 Longworth House Office Building
Washington, DC 20515

Dear Congressman Studds:

Thank you for the opportunity to present testimony on ocean dumping of sewage sludge to your Subcommittee on Fisheries and Wildlife Conservation and the Environment.

Man learned many years ago that proper disposal of bodily waste was an important function. In the beginning this may have been for personal safety as with Moses telling the children of Isreal when he was leading them to the Promised Land to dig pits and bury that which came from their body.

In some respects it would seem some of us haven't progressed very far from that "hide our waste" philosophy. Surely in a time when man has been successful in explorations into space we do not have to accept the hide our waste philosophy rather than to render it as harmless as possible to all forms of life, present and future.

Ocean dumping of sewage sludge or other municipal waste can no longer be tolerated by a society purported to be interested in the well being and quality of life for our children and future generations.

During the recent summit meeting between President Reagan and Soviet Leader Gorbachev, at the urging of Senator Roth of Delaware and others, the subject of environmental issues were discussed and agreements reached for cooperative studies. If this issue is important enough to be discussed at that level, at a conference primarily set for disarmament talks, then it is certainly important enough for Congress to legislate a cessation to the indiscriminate pollution of our ocean waters.

The dumper often says it is only an insignificant change that our dumping will cause. If we have learned anything from evolution it is that a series of apparently insignificant changes can lead to extinction of a species. Then too when one has used the ocean as its private sewer, as New York City and some surrounding communities have in dumping their waste since 1934, the result is a higher contamination background level which we can now claim are insignificantly affected by higher contaminate discharges. Will this vicious cycle never end?

Congress, in 1976, passed important legislation to protect the fisheries within 200 miles of the United States. This was later referred to as the Exclusive Economic Zone. This legislation recognized the importance in protecting those fisheries for the benefit of the US and the world. Most other nations have provided for similar zones and have taken measures to provide for conservation of and economic

opportunities from those fisheries. We in the US have seen the effects of a hostile environment on many of our fisheries.

We now observe contamination in striped bass and bluefish to the extent that citizen's advisories were issued by the State of New Jersey to its citizens regarding the safety of consuming these species. Other States have taken similar action on one or both species.

During the past year 600 bottlenose dolphins have washed up on the beaches from New Jersey to Florida. Fifteen humpback whales and a few finback whales have died this winter, apparently from ingesting a dinoflagellate bio-toxin contained in Atlantic mackerel.

The striped bass and bluefish are important recreational species. Atlantic mackerel is our largest single stock of fish in the Northeast EEZ. These fish are, at some phase of their life, food for our other important food fish, therefore, we can expect a transfer of this bio-toxin to many other species.

While no one is willing to blame these incidents on ocean dumping, the simple fact is we don't know the accumulated affects of this dumping. What we can say with certainty is that it contributes to the build-up of contaminants that are known to be harmful to fish at certain levels. These levels have not been determined for the conditions that exist in and around the dump site or, for that matter, any offshore waters.

We can no longer afford to play Russian roulette with our ocean resources in view of the increasing demand for fishery products by the American public which will, if uncontaminated, contribute to our individual health as well as economic well being.

I urge Congress to set an early deadline for the cessation of ocean dumping. Unfortunately, I do not believe that any legislation that sets an unrealistic timeframe will be enforced and would, therefore, be ineffective.

The practical legislation, in my view, would contain the following points:

1. A declaration by Congress that ocean dumping is not in our best interest and shall cease until proven to be safe.

2. The date for cessation be short, i.e., December 31, 1988.

3. Provide for an extension to those dumpers who have applied for and received EPA certification, prior to December 31, 1988, that they have technical problems that would prevent them from meeting the date set.

   a. The extension granted by EPA shall not be longer than that necessary to construct and begin operation of alternative procedures at the fastest pace practicable.

   b. The extension be granted only to those applicants willing to agree to a compliance schedule and, along with EPA, enter that schedule into a court consent decree.

c. The extension, in any circumstance, not exceed five (5) to eight (8) years.

4. The penalty for non-compliance with the original date, or any phase of the compliance schedule, be set at an appropriate level, i.e. $10,000 per wet ton dumped. (It currently costs $100.00 to $1,000.00 per 55 gallon barrel to dispose of toxic waste, or up to $4,300 per ton. Some waste being dumped, if segregrated, would be considered toxic waste.)

5. Monies collected as penalties be placed in a clean oceans fund. The monies would be split equally between EPA for enforcement purposes and NOAA to monitor and conduct research under Section 201 of the Marine Protection Research and Sanctuaries Act.

The costs of an alternative to ocean dumping will be the main argument of the opposition.

New York City has dumped its waste in the ocean since 1934. It should seem it could have saved enough by now to construct proper facilities without any financial aid or need to continue the poor mouth plea.

In New York City's application of 15 January 1988 for continued ocean dumping, they cite the cost of ocean dumping as $19,342,000 a year or land based incineration as $60,000,000 per year (Table 19-1). While this may seem high, let's remember the $60,000,000 would be borne by over 7 million people at approximately $8.57 per person per year or 2.3 cents per person per day.

Incinerator construction costs are approximately $125,000 per dry ton of sludge processed. The 454.7 dry tons (Table 15.5) shown by New York in its application would cost approximately 56,837,500. This would include bag house filters and acid gas scrubbers which, if located and operated properly, will not cause air pollution.

Estimated costs by New York, in a 1980 letter to EPA, cited the at sea dumping cost at $4,000,000 per year and land based operations at $40,000,000 per year. The other tables cited above are from the January 1988 application for a special permit to dispose of sludge from the 14 New York City water pollution control plants.

Glen Cove, New York, a Long Island neighbor of New York City, began engineering an alternative to ocean dumping in 1974. They constructed an incinerator with electrostatic precipators for air pollution control to handle 250 tons per day of combined refuse and sewage sludge. They produce power to operate the sewage treatment and waste recovery operations and have an additional 1,100 kw for sale per day. Glen Cove reports the facility will save $700,000 per year from the previous cost of trucking the refuse to New Jersey landfills and barging the sludge to sea. The cost of the Glen Cove facility was $24,000,000.

As we have seen, the cost of stopping ocean dumping need not be an excessive cost to a community.

Delaware has constructed a total waste reclamation facility to handle 1,000 tons of refuse and 70 dry tons of sludge per day at an initial cost of $73 million.

The City of Philadelphia, on being charged with violations by EPA, entered into a 1979 court consent decree to construct a composting operation and use land disposal operation in the interim period to dispose of 83,000 dry tons per year at a cost of over $100 million and an annual operating budget of approximately $28.4 million.

While Congress and EPA shouldn't tell the current dumpers how to handle their problems, Congress should definitely specify when to cease ocean dumping and EPA should be sure the "how" is proper to meet other environmental laws.

On behalf of the Mid-Atlantic Fishery Management Council, I support the ocean dumping legislation introduced by Representative Claudien Schneider on February 9, 1988. We are also aware that Senator William V. Roth, Jr. plans to introduce similar legislation in the Senate. These two bills contain the essential leverage required to effectively solve the problem. It is my belief that other proposed legislation will result in lengthy court action that could allow ocean dumping to continue for an undeterminable time.

Sincerely,

John C. Bryson

JCB/maz

Encs.

cc: All Subcommittee Members

STATEMENT OF THE HONORABLE MARGE ROUKEMA

FEBRUARY 18, 1988

SENATE SUBCOMMITTEES ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT

AND ENVIRONMENTAL PROTECTION

HEARING ON TITLE I OF

THE MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

I would first like to thank the Subcommittee Chairmen, Senators Lautenberg and Mitchell, for the opportunity to testify on this most crucial issue for the state of New Jersey. Both of you have shown great leadership on this and other environmental issues, and you are to be commended for your dedication.

Senator Lautenberg surely understands how degradation of the New York Bight and the Atlantic Ocean have wreaked environmental havoc on New Jersey's coast in the recent past. His introduction of the Shore Protection Act and legislation to ban ocean dumping after 1991 represents a coordinated attack aimed at preserving our beaches in the wake of last summer's horrors.

The issue of whether or not to ban ocean dumping after 1991 is a question of whether or not to continue activities that treat our ocean as a cesspool. This issue has pitted officials of New York and New Jersey against one another in an all-out war. It seems clear to me that New Jersey must prevail because the ocean, the state's tourism industry, and the quality of life of all New Jerseyans is at stake.

New York's position on ocean dumping represents ignorance on several levels. In opposing a ban on ocean dumping, New York has demonstrated its ignorance of the vital natural resources the ocean has bestowed on us all. This position is ignorant because it refuses to take into account the technological potential that exists to allow New York to turn to other alternatives to dispose of sewage sludge. New York's unyielding opposition to new alternatives is blind to the progress municipalities in New Jersey and Pennsylvania have made in turning to more efficient and environmental sound disposal techniques.

The state of New Jersey, at this point in time, continues to dump into the ocean, but the state government has and will continue to aggressively encourage the remaining "dumping" authorities to turn to safe land-based alternatives. These authorities have now begun to tap the existent technology and are on their way to adopting safe land-based alternatives.

We are currently in the year 1988. If the legislation Senator Lautenberg has introduced is enacted, this would give New York three years to develop and utilize other alternatives to ocean dumping. I maintain that this is a workable timetable. If New Jersey is willing to make the financial sacrifice, I believe New York should too. We must remember that the rest of the nation's coastal states have lived with a ban on ocean dumping since 1977. New Jersey no longer wants to be an exeption. Neither should New York.

Mr. Chairmen, we are at a critical point in handling this nation's growing garbage crisis problems. The ocean cannot continue to be a solution.

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